HANDBOOK OF ARCHITECTURE

Part II

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ITALIAN RENAISSANCE ARCHITECTURE

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VII

HANDBOOK OF ARCHITECTURE

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ARCHITECTURAL STYLES

Division ~~III~~ 3.
RENAISSANCE ARCHITECTURE

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By Dr. Joseph Durm.

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HANDBOOK OF ARCHITECTURE.

Part II.

ARCHITECTURAL STYLES.

Division 3.

RENAISSANCE ARCHITECTURE.

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PREFACE.

The statements made hereafter are based on observations and studies extending back to the time, when in the winter of 1866, I first passed over the Alps for the purpose of an extended study tour. Whatever is described, I have myself seen, examined, and drawn. Only the smallest portion of the materials collected in the course of years could be utilized within the prescribed limits; and for the larger and well known monuments, I have for evident reasons been compelled to give preference to general views from photographs to those from original drawings.

This volume forms the natural conclusion to two previously published volumes of this Handbook (Part II:- Volume 1, Architecture of the Greeks; Volume 2, Architecture of the Etruscans and of the Romans), and they may all be regarded as a connected whole, for one book succeeds another.

If a greater importance be assigned to structural ideas in these works, many of these being somewhat thoroughly treated, it will not be forgotten, that the architect here primarily addresses architects, who will not fail on their part to produce higher and purer designs, without which every art forfeits its existence, by means of a proper emphasis on historical events and esthetic impulses.

Carlsruhe. Oct. 1902.

Dr. Joseph Durm.

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3.

SECTION 2.

RENAISSANCE ARCHITECTURE IN ITALY.

By Dr. Joseph Durm.

A. INTRODUCTION.

Chapter 1. General and Historical.

"Therefore have we always wandered just as far from good taste and beauty, as we have wandered from the Greeks; most widely in sculpture and architecture, the antients never become antiquated. They are and remain the polar star for all undertakings, whether in literature or the formative arts, which we should never lose from view. Shame awaits the period, which presumes to set aside the ancients. Therefore if a depraved, miserable, and only materially directed "present time" anywhere abandons their school, to find itself more comfortable in its own darkness, it then sows shame and disgrace".

Schopenhauer. Parerga and Paralipomena. Vol. 2.

1. Survey.

Scarcely had been allayed the storms of the migrations of the nations, which raged throughout the Italian peninsula and threatened to sweep away antique culture, than with the ceasing of barbarities, the knowledge of its great past appeared among the still partially antique peoples;[1] they honored it and loved to connect themselves with it again.

Note 1. Compare Burckhardt. Cultur der Renaissance. 4th ed. Vol. 1, p.197. Leipzig. 1885.

The prelude to this mighty procedure was undertaken by learned men and poets (Petrarch, Mussato); the formative artists only succeeded these in the scene, though with more splendid results, when architects and sculptors readily yielded to the influence of the antique, while painters utilized it less, since almost all great paintings had disappeared.

Upper Italy first adhered to the Romanesque style of Central Europe in its architetcural works, while Venice rather cherished the Byzantine style, together with nearly all Lower Italy.

The earliest attempts to reproduce the architectural forms of ancient Rome were made in the eternal city itself and in Tuscany.

Already in the 3-aisled Basilica of S. M. in Trastavere (1140-98), the arch had to yield to the architrave for connecting the detached pillars; on the exterior of the portico of S. Lorenzo-f-l-Mura (1216-27) and on Ss. Giovanni e Paolo, which was restored in the 12 th century after being sacked by Robert Guiscard, the antique architrave again recovered its ancient rights (Figs. 1, 2).

The artist family of the Cosmati created works in the two charming cloister courts of the Lateran (Fig. 5) and of S. Paul, which are permeated by the ancient spirit and do not yield in design and beauty of detail to the creations of the ancients, yet their masters knew how to express their individuality in them. It is no slavish repetition of ancient harmonies, note by note. The works of the Cosmati do not equal those in size, massiveness, or force in construction, but in well-weighed proportions, in the spirited harmonizing of the ashlars with their costly colored ornamentation. No visitor of these little courts (Fig. 5) can repel the magic of their effect; smiling peace, and not the damp northern air of the cloister, rules in these porticos.

Florence, the Tuscan capital, enters more boldly, being called to the leadership during the later changes in affairs. It presents to us the Baptistery in the lower city, the quiet octagonal building with a distinguished effect (1150), with its white marble panels bordered by Verde di Prato, its portal columns, its polygonal piers connected by blind arches, and the graceful Corinthian pilasters on the walls. The subdivision of the internal walls, conceived in entirely antique form with flat recesses and detached columns, their gilded capitals with the antique entablature above them, (compare the arrangement in the Pantheon), above which the wall pilasters with their interposed doubled arches on small columns, and the continuous main cornice bearing the dome, ... these are works, which could not indeed have been better done

by any antique master (Fig. 4).

And on the heights beyond the Arno is the wonderful Church of S. Miniato (1207) with its original facade, built at the same date as the Baptistery.

2. Protorenaissance and Gothic.

But the strongly Renaissance buildings of Tuscanylikewise frequently exhibit the finest antique or classic forms of details, and the architecture in the paintings of Giotto and his pupils show a purely antique treatment. The "Protorenaissance" demands admission through such undertakings, but it was still impeded by the new "Gothic" style, which arose in France in the 13 th century.

German masters brought the French style to Italy and it prevailed, not by the advantages of its decorative appearance, but rather "as the mightiest form of the vaulted structure with the least possible materials". (Compare under D; Ecclesiastical Buildings). So far as effective interiors are concerned, the Gothic of Italy eventually surpassed its inventors in church architecture; for no cathedral on the other side of the Alps can show such an interior as S. Petronio in Bologna, in spite of the fact, that it stands there but half finished and without colored decorations; but the secular architecture of this style in Italy lacks the charming and fanciful play of form on our Lower and North German buildings with their roof ornaments, bay windows, turrets, etc., the high roof that compels an effective outline of the structure, which likewise belongs to French Gothic, and which the Renaissance masters of this country (Germany) retained in their creations, lending them an additional and peculiar splendor. Defiant and fortress-like in appearance in the cities of Italy are the palaces of the nobility and of the elevated wealthy class of citizens; their facades are regular and symmetrical in arrangement, the windows resting on a belt extending across, cutting through the masonry at regular intervals, the ground story mostly unbroken or also animated by small windows, designed for the security of the inmates and for defence. The living apartments are no longer in the ground story, as in the

antique house; they are placed in the next story above it; the "piano nobile" (best story) changes its place; the stairways and access thereto require a correspondingly more imposing treatment. Battlements for defense crown the walls of the facade or rise above the but moderately projecting arched cornices.

We likewise frequently find the stories corbelled out in stone, derived from wooden construction, the facade walls resting on stone corbels or stone arches, to give a greater width of street, required by increased street traffic, in return for increased floor area in the upper stories.

The great art of the 13 th and 14 th centuries had spent its force in the 15 th century, the Gothic ended; it had reached the limits of its system, and a return to simpler forms was the only means of reviving the art. Men returned to the antique orders.

The round arch again took the place of the pointed arch, and where it appears on a Gothic building, it is the first certain indication of the death of this style.

3. Transition style.

The Gothic style still existed voluntarily for a time beside the Renaissance in certain provinces, though worn-out and without the cheerful ornamental degeneration in Northern countries, as in France, Germany, and England. To this is frequently added the necessary completion of unfinished buildings in the old style, especially of churches. It was still (1514) desired to build the facade of S. Petronio in Bologna in the Gothic style, and even the great Renaissance master Baldassare Peruzzi supplied two designs for this.

Niccolo Pisano and Arnolfo already worked in the old or new styles as required, thereby contributing not a little to the uncertainty in the decisions of those controlling the buildings, and of the public.[3] The Bolognese architect Ariguzzi complains of this about 1514; "People of all kinds, priests, monks, nuns, artisans, owners, schoolmasters, women, potters, spindle-makers, laborers, and even water-carriers, pretend to be architects and to give their opinions, -- but none of them

appears with a model or drawings!"

Note 3. Compare Burckhardt. Geschichte der Renaissance in Italien. 2 d edit. p.24, 30. Stuttgart. 1878.

The Early Renaissance is usually more tolerant than the perfected style; it still esteems the works of its predecessors; It rejects nothing, and thus a number of buildings arise, in which picturesque charm and a naive mixture of the old and the new contend together and produce charming results. Painting and sculpture already become therein a freer and grander joint effect, -- highest in the best period of the style, -- caused by a more imposing treatment of interiors in accordance with the law, that vaulted apartments could not be made sufficiently lofty and spacious, "for one of the noblest things in architecture is the height of the stories."

And even if Filarete (1460) said of Gothic; "accursed let him be, who invented this blunder, and I believe that only barbarous peoples could have brought it to Italy;" like many others of the first period, he was indeed so good-natured as to adopt the pointed arch in the architecture of his facades, and he gave to his discontent the best expression, worthy of an architect, only by clothing the structural forms, so distasteful to him, with the most charming details, which the Re. naissance has created.

// 4. Examples.

Among these creations of the transition style, I include among ecclesiastical buildings alone, the interior of S. Francesco in Rimini (1445), and that of S. Maria in Palermo ((Figs. 3, 6), built anew in the 15 th century on the site of an old church. In the portico and in the interior are the flat arches frequently found in the monuments of the transition from Gothic to Renaissance, moulded in a peculiarly original manner and executed as peculiarly attached to the vertical surfaces. Certain portions of the Cathedrals in Como and in Sebenico are to be placed here; likewise the cloister court of S. Maria della Quercia near Viterbo, with the Gothic ground story and the round arcade on Ionic columns in the upper story (Fig. 7). Also Filarete's doors for S. Pietro in Rome (1445),

once gleaming with gold and enamel, should be méntioned here as famous products in the domain of the minor arts.

Among secular buildings should be cited parts of the Hospital Maggiore in Milan (Fig. 8), as well as the facade of the former Bank of the Medici there, both by Filarete (1457; Figs. 9, 10), then the Palace Bolognini, earlier Isolani, in Bologna (1454) with round-arched porticos, above these being pointed-arched windows and a cornice with consoles and shells; the Palace Marliani, unfortunately destroyed in 1782, published in the work mentioned [5] below from an old copperplate, with pointed-arched windows between pilasters and other additions, which breathes all the grace and all the fancy of the Renaissance; further the Casa Trovatelli in Pisa (1450), the Palace Vitelleschi in Corneto with its two great Gothic windows with tracery and its antique detail forms on doors and windows, as well as on the cornice with consoles (Figs. 11, 12, 13, 14, 15); the court of the Palace del Commune in Ancona (1470) with pointed arcade and angle columns on the massive piers, with palm-leaf capitals on the pilasters, which in this treatment of detail recall Early Renaissance work, the archivolts of the pointed arches are there also arranged in antique forms, --- the whole being a work of Francesco di Giorgio. Likewise the Loggia dei Lanzi of Orcagna (1380; Figs. 16 - 18), which again allows its rights to the round arch of great dimensions, might be designated as a precursor of the Renaissance movement, as well as the court of the Doge's Palace (1505), whose round and pointed arches occur above and beside each other, there being round arches in the ground story and pointed arch-
12 es in the next story, above these again being round arches. Finally should be mentioned as a very interesting example, the Palace Rettorale in Ragusa (1435-65), begun by La Cava and finished by Orsini.

Note 5. Müntz, E. La Renaissance en Italie. Paris. 1885.

13 The buildings just mentioned may be regarded as important representatives of the transition style; it is self evident that these do not exhaust the series of examples. But they may suffice to thereby exhibit what the transition style could create.

5. The New Art.

After these preliminary steps, there was only required the impulse of a man of genius, of a great work by him, to create an enduring application of the innovation and to make it fashionable everywhere. This was furnished by Filippo Brunellesco by his design and consctruction of the dome of the Cathedral in Florence.

The effect of this work is most clearly characterized by the letter of the best man in that highly learned age, of the great Leon Battista Alberti to Filippo di Ser Brunellesco, which he prefixed to his Pamphlet[8] on Painting, as a preface and a dedication to Brunellesco.

Note 8. Compare the translation and the Italian original in Janitschek. Quellenschriften für Kunstgeschichte. p. 46-49. Vienna. 1877.

"Admiration and sorrow are together aroused in me, that so many exquisite and illustrious arts and sciences, which according to the evidence of history and of the still visible works by the ancients, so highly endowed by nature and standing in such splendor, are so seldom employed at present, or are almost entirely lost. Painters, sculpturs, architects, musicians, geometricians, orators, soothsayers, and like noble and wonderful geniuses are today very rarely found and are (then) but
14 slightly praised. Then I thought, --- and many things confirm-
15 ed me in that idea, that nature, the mistress of all things, had already grown old and worn-out, would only be as likely to bring forth great intellects as giants again, as she did in wonderful abundance in her (almost) youthful and more famous ages.

But then after a long banishment, in which Alberti had grown old, I had returned to our mother country, preeminent above
16 all others, I found that in many, but especially in thee, O
17 Filippo, and in our very intimate friend Donato, the sculptor, and in those(others), Nencio, Luca, and Masaccio, there lived a spirit capable of every famous act, and one not in any wise to be placed below any one of the ancients, however famous in these arts he may have been. But I now sew always, that it

was no less a matter of our diligence and our care, than a gift of nature and of the age, to deserve in any such matters the fame of aptitude. Hence I avow to you, that if it was less difficult for those ancients to attain a knowledge of those highest arts with the actual abundance from which to learn, and which they could imitate, and whose practice is so toilsome for us today, therefore must our fame be the greater if without teachers and without models, we originate arts and sciences, which had previously never been seen or heard of. Whoever might be so proud or so envious as to not praise the architect Pippo, when he sees his buildings here, so massive, towering, large enough to cover all the people of Tuscany in its shadow, and it was erected without the aid of any scaffolding; according to my opinion an art-work, that was perhaps as little known to the ancients, as its erection appears inconceivable at this time. Yet there will be another place to speak of the superiority and also of the abilities of our Donato and of others, so dear to me by their characters. But thou goest on so strongly as thou dost, devising things day by day, by which thy wonderworthy genius shall inherit eternal fame and name, and leisure falls to you, that thou mayest peruse this little work of mine on painting, which in the Tuscan dialect I dedicate to your name- - - - etc."

He closes the letter with the discreet proposition:--

"Never was an author so learned, that learned friends were not of the greatest advantage to him", and he requests possible emendations.

In the first half of the 15 th century, the great Brunellesgo under Cosimo I replaces the Gothic pier by the Roman column (compare Chapel Pazzi, 1430); he makes Tuscany the centre of the Renaissance movement. He arouses the feeling for beautiful proportions of the stories and with Michelozzo introduces a regular gradation of rustication, of windows, and of string-courses, which progress the Sienese extended, especially in the treatment of the cornice and in its proportion to the whole; in the treatment of the capitals, they even excelled the Florentines.

6. Early and High Renaissance.

Thus the development of Renaissance architecture particularly depended[9] upon the works of a few masters of the very highest rank. These are in the period of seeking, in the first period from 1420 to 1500 (Early Renaissance): Brunellesco, Michelozzo, and Alberti; in the second one from 1500 to 1540, the golden age of the Renaissance (High Renaissance), the period of harmony between principal and detail forms and of decoration kept within its limits, the great Bramante from Urbino and his pupils.

Note 9. Also compare Burckhardt. Der Cicerone. p.300 et seq. 7 th ed. Leipzig. 1898.

About the middle of the 16 th century, Michel angelo Buonarroti, the greatest of the Florentines, equally great as painter, sculptur, and architect, assumed the leadership; subjectivism in the art reached with him its climax. The academic period followed with its chief representatives, Palladio, Vignola, Serlio, and the art of the 16 th century ended with Domenico Fontana, an imitator of those mentioned.

7. Barocco.

The art of Michel Angelo eventually obtained supremacy; Bernini and Borromini, the masters of the Barocco style just commencing, appear at its highest, succeeded in the 18 th century by the two strongest architects of that age, Juvara (1685- to 1735) and Vanvitelli (1700 to 1773).

We may decide on Bernini as we like, his porticos around the Place of S. Pietro in Rome (1617) will always remain a dignified creation of grandiose effect, and no one can entirely deny to the Fountain Trevi, executed from his designs by Nicolo Salvi, a certain grandeur in effect with proportionally good detail forms, even if the whole be somewhat theatrical in conception.

The broken and prominent pediments, varying in all direct-
/9 ions, the twisted columns, the heavy reliefs and the stronger effect of shadows thereby produced, became the characteristics of the style, as well as the circumstance, that the expression of power and feeling is required from the decoration,

sought by repetition and compactness, but the eye was thereby dulled for all more delicate forms.

Yet with all this blame, the words of Burckhardt should not be forgotten: "Barocco architecture speaks the same language as the Renaissance, but a ruder dialect thereof." And also:- "That contempt for this style will ilkewise not be found among educated architects. They well understand how to distinguish intention from expression, and they heartily envy the artists of the Barocco the freedom, that they enjoyed and in which they sometimes became great."

Chapter 2. Renaissance Masters.

8. Survey.

What is presented in this chapter is not the history of the movement and of the works of the different architects of the Renaissance, -- this may be read in Vasari and others, -- there will not be given a history of architecture arranged according to the masters, praising their works, but rather will all they have given to us be collected as a whole, so that museums and archives with their treasures may lose somewhat in importance; only the architectural ideas embodied in stone appear to us primarily fruitful and worthy of consideration. "Saxa loquntur", -- the executed works speak.

We all know that the highest conception of the ideal was not always embodied, -- just as elsewhere, -- that so much was wrecked on the obstinacy of those controlling the buildings, that others were either not built or were stunted by envy, bad times, or precarious conditions, as well as that the most divine inspirations appeared only on paper to the light of the world, merely as a precious material to disappear in drawings or to sometime bear witness to what the divinely gifted soul of the artist desired, but might not execute.

So was it then as well as today; scarcely has an architect ever been permitted to show among the stone structures of the world how high might be the flight of his imagination and his power in the solution of a given great problem!

Their names should be given in a general way, with what

they have created and what is told of them, but without a comprehensive completeness.

9. Duration of the Lives of the Masters.

If the versatility and creative power of the Renaissance artists, who with a good general education were almost invariably painters, sculptors, and architects, at the same time, many of them being also authors, mathematicians, and military engineers, must be termed great, the question may then be asked, what duration of life was granted to them by Providence. The reply produces the succeeding Table, in which we assume as well known, that none of those mentioned passed the last years of his life in the quiet enjoyment of a pension. As Bismarck said, they all died in harness, like a good horse. They did not inspire their employers with the former zeal; they matured and their works became esteemed during the long life of the art.

The briefest duration of life is shown Raphael and Giulio Romano with 37 and 48 years; the longest by Fra Giocondo, Sansovino, and Michelangelo, with 99, 91, and 89 years respectively. The average length of life of the Renaissance architects is between 69 and 70 years, an age usually attained by the artists of our time with unlimited activity in a specialty, with a much smaller scope of abilities, and when they stop their work at a reasonable time.

Note 10. A complete register of the architects of the Renaissance in Italy was collected with great industry, and with the execution of their works, it is contained in the textbook and manual of Redtenbacher, R. Die Architekten der Italienische Renaissance; p.383-451. Frankfort-a-M. 1886. To this is also added a chronological register (p.452-508), a register of persons (p.509-538), a register of things p.539-540), and lastly a register of places (p.541-568), these together compose the most important half of the contents of the work. With great zeal and industry have the materials been collected therein, that make possible a rapid orientation.

In this compass of 185 printed pages, the enumeration of the masters could not be made in this volume, and in mentioning

their works, only brief notice could be given to those, which made the fame of the masters. I refer the more willingly to the work of Redtenbacher, since it was once intended for the Handbook of Architecture.

TABLE OF RENAISSANCE MASTERS.

201 a. Early Renaissance.

Filippo di Ser Brunellesco. 1379 - 1446.

Florence; Dome of Cathedral, Chapel Pazzi, S. Lorenzo, S. Spirito.

Michelozzo-Michelozzi. 1396 - 1472.

Florence; Palace Riccardi: Milan; Chapel near S. Eustorgio.

Leon Battista Alberti. 1404 - 1472.

Rimini; S. Francesco: Florence; Palace Rucellai.

Bernardo Rossellino. 1409 - 1464.

Florence; Badia: Pienza; Buildings.

Fra Giocondo. 1453 - 1519.

Verona; Loggia dei Consiglio: Edition of Vitruvius; Letters of Pliny.

Tomaso Rodari. 1485.

Como; on Cathedral: Pavia; on Certosa.

Giuliano da San Gallo. 1445 - 1516

Prato; S. Maria delle Carceri: Florence; Palace Gondi, Portico opposite Orphans' Asylum.

Antonio Averlino. (Filarete). 1410 - 1479.

Milan; Hosptial Maggiore, Bank of Medeci.

Giovanni Antonio Omedeo. 1447 - 1522.

Pavia; on Certosa: Bergamo; Chapel Colleoni.

Francesco di Giorgio. 1439 - 1502.

Ancona; Palace del Commune.

Baccio Bintelli. 1450 - 1492.

Urbino; Palace Ducal.

Ventura Vittoni. 1442 - 1522.

Pistoja; Madonna dell'Umilta.

Antonio da San Gallo. 1455 - 1534.

Montepulciano; S. Biagio.

The Lombardi in Venice: Martino L. 1480; Pietro L. 1481-1489; Sante L. 1504 - 1516. By them are :--

Venice; School S. Marco, S. Zaccaria, S. Maria dei Miracoli, Palace Vendramin-Calergi, Palace Corner-spinelli: Padua; S. Giustina.

b. High Renaissance.

Donato d'Angelo (Bramante). 1444 - 1514.

Milan; S. Maria delle Grazie: Rome; S. Maria della Pace, S. Pietro, Palace Cancellaria.

Raphael Sanzio. 1483 - 1520.

Rome; Palace Vatican, S. Pietro, Chapel Chigi, Villa Madama: Florence; Palace Pandolfini.

Giulio Romano. 1498 - 1546.

Rome; Villa Madama, Palace Cicciaporti: Mantua; Palace del Te.

Girolamo Genga. 1476 - 1551.

Pesaro; Church and Palace Sinigaglia, Palace Bishop.

Baldassare Peruzzi. 1446 - 1523.

Rome; Palace Farnesina (?), Palace Linotta, Palace Pietro ed Angelo Massimi.

Sansovino, Jacopo. (Tatti). 148. - 1570.

Venice; Palace Corner, Palace Casa Grande, Palace Library, (Royal), Scala d'Oro, Palace Doge.

Antonio Giovane San Gallo. 1482 - 1546.

Rome; Palace Farnese (without entablature): Loretto; S. Casa.

Baccio d'Agnolo. 1460 - 1543.

Florence; Palace Badolini (Hotel du Nord), Palace Torregiani.

Giovanni Mar. Falconeeto. 1458 - 1534.

Padua; Palace Giustiniani, Gate S. Giovanni.

Giovanni Dosio. 1533.

Florence; Palace Larderel, Chapel Gaddi in S. M. Novella.

Michele San Micheli. 1484 - 1559.

Montefiascone; Cathedral: Verona: Palace Canossa, Palace Bevilacqua, Chapel Pellegrini: Gates in Verona, Zara, Sebenico.

Michel Angelo Buonaroti. 1475 - 1564.

Rome; S. Pietro, Capitol rebuilt: Florence; Sacristy and Library S. Lorenzo.

c. Theorists. From 1540 to 1580.

Giacomo Barozzi Vignola. 1507 - 1573.

Rome; Villa Pope Giulio: Araceli, Porticos near: Piacenza: Palace Farnese.

Pirro Ligorio. 1491 - 1580.

Rome; S. Maria sopra Minerva, Villa Pia, Palce Vatican, S. Pietro.

Giorgio Vasari. 1511 - 1574.

Pistoja; Dome C. Umilta: Florence; Palace Uffizi: Arezzo; Buildings.

Bartolommeo Ammanati. 1511 - 1592.

Florence; Court of Palace Pitti, Fountain of Neptune, Palace Pucci, Palace Vitale, etc.

Pellegrino Pellegrini Tibaldo. 1522 - 1592.

Bologna; Palace University, Court of Palace Arcevisco, Palace Magnani.

Fra Giovanni Montorsole. 1506 - 1563.

Genoa; Palace Doria: Messina; Fountain, Marble.

Galeazzo Alessi. 1512 - 1572.

Milan; Palace Muncipio: Genoa; S. Maria di Carignano, Palace Imperiali, Palace Brignole, Palace Spinola, Palace Pallavicini, etc.

Andrea Palladio. 1518 - 1580.

Vicenza; Basilica, Palace Porto, Villa Rotondo: Venice; C. Redentore.

d. Barocco.

Francesco Borromini. 1599 - 1667.

Rome; Palace Spada, Towers of S. Agnese, C. Sapienza, S. Andrea del Fratte, etc.

Carlo Maderno. 1556 - 1639.

Rome; Nave of S. Pietro, Palace Barberini, Palace Mattei.

Giovanni Bernini. 159e - 1680.

Rome; Altar Canopy in S. Pietro, Palace S. Apostoli, Palcce Barberini, Fountain in Piazza Navona, Colonnades of S. Pietro.

Domenico Fontana. 1546 - 1607.

Rome; Portal of Palace Cancellaria, Aqueduct Paolina, Obelisk on Place S. Pietro.

Giacomo della Porta. 1541 - 1604.

Frascati; Villa Aldobrandini: Genoa; S. Annunziata, Facade Luigi dei Francesci.

Filippo Juvara. 1685 - 1735.

Como; Dome of Cathedral: Turin; C. La Superga.

Luigi Vanvitelli. 1700 - 1773.

Near Naples; Palace Caserta.

Nicola Salvi. 1735.

Rome; Fountain of Trevi.

22 Chapter 3. Building Materials and Technical Methods.

"One first seeks to win from the style, first its earnestness, then its sportive gracefulness. Its proportions are preferably based on the material. The ordinary building stone expresses itself with peculiar strength, one finds a certain expression of richness imuted to marble, a definite one to bronze, another to wood, and again a different one to stucco."

Burckhardt.

10. Preleminary Remarks.

In order to first decide upon the nature of the purely technical works of the Renaissance, independent of the formal part, we should not forget that we have to do with a derived and not with an early phase of the art, one which was already preceded by highly developed culture and art monuments 2000 years earlier in Europe. The Grecian, Etruscan, Roman, Early Christian-Byzantine, Romanesque, and Gothic, had already said their lesson before the Reniassance in Italy had commenced to stammer its first words. We must see and judge under what conditions our predecessors worked, and thereby measure and estimate the undertakings of the new art, examine what is novel, original and individual, or was transferred from the ancients, and whether new acquisitions or losses, or uncritical dependence upon the antique are to be recorded.

Onln thus will praise or blame be justified; only thus may we also utilize the principles for our creations and form the basis for the further development of a style, that has now for 600 years dominated all the countries of the civilized world, and has not even spoken its last word, as the great monumental buildings of all the principal cities of Europe, America, and Australia now completely show. Good fortune has given to us in the countries of German speech a Gottfried Semper, Hasenauer, and many others, whose works in the Renaissance style

will extend long rays, warmth, and light, even if in the period from 1790 to 1830, we must believe, as Leon Battista Alberta once did, that Nature had grown old and wearied and could never produce a great architect again!

11. Building Stones.

And now the first question is:- what building materials did the earlier architects employ? They used natural and artificial stones; granite, porphyry, marble of many and of a single color, ordinary limestone, volcanic stones (tufa and peperino), sandstone in ashlars and blocks, mighty monoliths and small spalls, clay bricks, both burned and unburnt, as well as glazed terra cotta.

There were used as mortars at different times; lime, asphalt, hydraulic mortar (of lime, sand and puzzolana), with iron and wooden cramps.

12. Building Woods.

For beams, the frame-work of roofs, and for works of internal decoration, there were employed hard and soft woods, the different kinds of oak, beech, poplar, alder, elm, ash, cedar, juniper, cypress, pine, larch, fir, willow, linden, walnut, olive, etc., both on this side and beyond the Alps. Sycamore and chestnut occur earlier in Italy than in Germany.

13. Metals and other Building Materials.

Of metals were used; in Northern and Southern Europe, lead, iron, copper, tin, bronze, gold, and silver. For internal and external decoration, the most diverse colors, and also
23 for the former, fabrics, leather, ivory, mother-of-pearl, precious stones of all kinds, large white plate glass, small pieces of cast glass of all colors, as well as different kinds of enamels.

The Renaissance masters did not resort to other materials. They indeed made one or another kind of fine wood or stone serviceable for ornamental purposes; but they added none to the principal building materials. They dispensed with substitutes, with which our era abounds, thanks to progressive science.

The kinds of roof coverings transmitted were:-- reeds, wood,

straw and earth, stone slabs, burned tiles, clay slates, and metal (lead, copper, bronze).

The roof of stone slabs (Cathedral in Sebenico), the tile roof (Cathedral in Florence, Dome of the Umilta in Pistoja, and almost all palaces in Tuscany), remain in use during the Renaissance. The gray Rhenish slate roof did not find its way across the Alps; it extended scarcely to the foot of the Alps on this side (Germany); the Genoese roof of slate slabs has nothing in common with it.

Of the metals, only iron was to any great extent employed for structural purposes in the Renaissance, but rather as a helping or assisting material for wooden and stone structures; it never played an individual part in the sense of modern architectural construction.

The use of bronze for large constructions (roof trusses) was not foreign to antiquity, evidence of which may be deduced from the bronze trusses of the roof of the portico of the Pantheon in Rome, existing a few centuries ago. An ecclesiastical dignitary engaged in building and his pliant architect destroyed and transformed them, utilizing them for their building purposes. "Quod non fecerunt Barbari, fecerunt Barbarini", (Barbarini did what barbarians did not do), -- Pasquin, always ready to strike, said of this act.

No attempt was made to practice and further develop the system of construction, of the art and methods of the antique, so highly revered by them, and which certainly found more extended use during the imperial period (in basilicas and forums).

The Renaissance in Italy made use of all the building materials mentioned and of the modes of using them, excepting the latter, and this causes the reproach, that it has contributed nothing to extend the application of metals to building purposes and to metallic construction, as the intervening art periods were likewise unable to do.

Hence an impoverishment in the structural means of expression is thereby proved, in comparison with the ancients.

14. Iron as a Structural Material.

The role of iron as an aiding material in large structures of wood may be here considered only on account of its relations; it continues in the same way during all ages and was

the same in the Renaissance. More important for us is its co-operation in the monumental covering of rooms of wide span and likewise in small vaulted buildings, in which strong external walls or corresponding buttresses could not be assured.

Antique art avoided everything in building, which might afford opportunity for,or require the consideration of its stability, therefore it arranged its plans in such wise, that the necessary abutments for the vaults disappeared in the 1
24 length of the walls, and they first became visible in the buildings of the later period (Minerva Medica in Rome), though but timidly. They likewise avoided a direct resistance of the thrust of vaults by inserting wooden or iron ties, especially of visible ones (Figs. 19, 20; concealed in Fig.20).

Byzantine and Arabian architects on the contrary made no secret of them, as the iron ties show in S. Sophia at Constantinople and also Fig. 21 c, taken from an Arab mosque in Cairo, where the insertion of a complete wooden framework with continuous ties between the capital and impost is carried out. Complete details of this may be found in the work mentioned below.[11]

Note 11. Choisy, A. L'Art de Batir chez les Byzantins. p. 117, 122; pl.25. Paris. 1883.

They were followed by the masters of Romanesque and Gothic architecture, who even made the ties objects of a colored decoration, as shown by the Romanesque Church of Schwarzach in Baden,[12] the Church buildings of S. Giovanni e Paolo in Venice, the Church dei Frari there, and S. Anastasia in Verona (Fig. 21, a, b) and by various others.

Note 12. See Durm, J. Die Abteikirche in Schwarzach. Deutsche Bauz. p.453. 1899.

In large structures, so far as these may be mentioned generally, the middle ages used iron for ties, when the iron bar is assured against deflection by suspension on iron wires. This necessary evil does not exactly form a decoration; in the Venetian churches, they have a complex effect by their different heights at the imposts of the side and central aisles, disturb the effect of the interior and always remain in-

interrogations of the knowledge of the builders.

This precedent in the sole use of iron was likewise followed by the Renaissance masters in an unthoughtful way. Scarcely one of the vaulted passages in the cloister courts, resting at one side on slender columns of stone, is built without the questionable addition of iron tie-rods, and they likewise appear in the great Portico of the Innocenti, in the courts of the palaces of Florence, Milan, Bologna, and Genoa, in the cloister courts of S. Lorenzo, of the Certosa near Florence, those near Pavia, Pisa, and Bologna, as also in the Churches of S. Siro in Genoa, of S. Maria Nuova in Cortona, S. Maria della Grazie in Pistoja, and in a hundred others, concerning which it is to be said, that the Early Renaissance sought to keep its churches free from this structural addition (for example, S. Lorenzo and S. Spirito in Florence).

For connecting iron rods to anchors, there were employed
pins, eyes, and bolts, with clevis bolts for tightening the
25 wedges afterwards in certain other connections (Fig. 21, d,
e, f, g), just as in the preceding period, which as seldom
used screws of iron. No progress is likewise to be mentioned
26 here, and cabinet-making alone presents such, for it first
brought wooden screws into use. With these should not be confounded the "wooden screws", which the ancients already employed in presses[13] for oil, wine, and for fabrics(Compare Pompeii, Fullonica).

Note 13. In the Chamber Accounts of Louis XI (1478) are mentioned "fifteen screws and four mornes (?) of iron. A more general use of the screw is first recorded in the 16 th and 17 th centuries. -- In the "Inventory of Mazarin" (1653) is included a bed:- "The wood of a complete bed with the screws to put it together." - In the Bargello in Florence is a bell with the date 1384, that still has a clevis bolt for fastening the hook of the clapper: another with the date 1440, on the contrary, has iron screw bolts with nuts.

Chapter 4. Masonry of Natural Stones; Scaffolding, and Histing Machines.

15. Stone Masonry.

15. Stone Masonry.

"The organic law, that acts in masonry is fixed by an artistic realization of what structural needs and local conditions prescribe, by the appearance corresponding to the feeling for beauty. The force of gravity and the resistance of the material thereto are the chief and most prominent forces here effective; it is clear that these increase in activity, the more the load increases, thus from above downwards. The stepped reduction of the magnitude of the structural elements from below upwards, that everywhere appears in the artistic structures best executed in ashlar style, therefore corresponds both to the laws of beauty and those of dynamics. To this is adjoined another law, both structural and esthetic, that of the similarity of elements, which applies equally and similarly. Thus with a stepped use of dimensions in courses, each course must consist of similar elements, so far as possible. - - - But as being vertical, the wall is moreover subject to the general law of proportional development, in so far as it consists of three parts, the base, the body, and the crown (plinthus, truncus, corona). - - - In every style, whether called Egyptian, Grecian, Roman, Gothic, or otherwise, there applies the absolutely true rule, that substructure and crown for buildings in several stories must first base their proportions on the whole, as if the entire building were merely divided in three parts, consisting of: 1, the substructure, 2, the crown corresponding to it and to the whole, 3, the intervening portion supported by the former and terminated by the crown. But moreover, the harmony of the smaller units (stories and their subdivisions) is to be arranged with each other and with the main division into three parts."- - -

Semper, G. Der Styl. p. 368, 383, 388. Munich. 1863.

16. Egyptians, Greeks, and Romans.

The Egyptians built their walls entirely solid and wholly of ashlars; that race built for eternity and rejected stone filled masonry with stone facing. The Greeks likewise gener-

generally followed the same principle, but went to work more economically, for they neglected the contact and careful working of the ashlars in the interior of the walls, producing in a certain sense a hollow construction, which attained a high degree of stability by proper bonding in courses, coupled with the most careful dressing of the beds and abutting surfaces, with the connection of the separate stones in height, width, and depth, by means of iron dowells set in lead, by Z or I-shaped, or dovetail cramps, together with the use of through headers (diatonoi). These ashlars were set without mortar and with the most perfect jointing, and no people of the earth and no period has to this day excelled Grecian
27 buildings in beauty and in goodness of execution; on the contrary, everything else is mere bungler's work! Etruscans and Romans frequently sought to keep step with their predecessors in this matter, and they sometimes succeeded.

Although by them likewise, and especially in the late period, the massive ashlar construction with extremely great dimensions of the stones was employed, (Baalbec, certain portions of the Amphitheatres in Verona, Nimes, Arles, Pola, and Rome), the works of the Roman constructors of the imperial period yet mostly exhibit the greatest economy in the use of dressed ashlars, for they gave the preference from them to filled masonry composed of spalls and mortar, faced with or brickwork, ashlars, or stone slabs (Emplecton, opus reticulatum, opus incertum), a construction already condemned by Vitruvius, when he called attention to cracks caused by unequal settlement of the different parts of the building, and to the possible fall of it after completion, which might occur, when the filling was not made in suitable proportion to the facing, and when thick filling with thin facing were both executed at the same time. (Compare in this respect the cracks in the walls of the Tombs of the Mamelukes and of the Caliphs near Cairo, and those in a large number of fortress walls of Italian cities, faced with brickwork.

17. Middle Ages.

Thus the Italian and German middle ages built with small

stones in opposition to the French, with poor ashlar masonry on the exterior and small pieces of stone on the interior. "Depopulation, poverty, and destruction of the roads and waterways, loss of ancient architectural traditions and of the mechanic arts, led the early middle ages to the thin ashlar masonry with thick joints in lime mortar, which is also an important key to the understanding of mediaeval architecture, since it characterizes the periods."

Another common property in all ashlar masonry of the peoples mentioned is the principle of pyramidal diminution, employed to actually increase the stability of the walls, or even for purely optical reasons. Egyptians, Greeks, Romans, and the architects of the middle ages, made use thereof, and those of the Renaissance did not exclude it. But they surpassed the ancients in its gradation.

And one thing further, that already occurred early (for example, on the pedestalof Agrippa near the Propyleion in Athens, Fig. 22), which is pseudisodomic masonry (with courses of unequal height), and which was in Byzantium in the early middle ages a favorite motive for the decoration of ashlar masonry, and thence extended further from east to west(Venice, Messina, Florence, Pisa, Ferrara, Bergamo, Como, etc., where white, red, and dark green to black, courses alternate together, when the darker are, as a rule, the thinner courses), and which was likewise adopted by the Renaissance.

18. Renaissance Ashlar Facing.

As the Italian middle ages built first and then decorated, the reverse of the French (compare many unfinished churches and public buildings, for example, the Badia and the facade of the Cathedral in Florence , before its completion, also Figs. 23, 24 a, b, c, h), so did the Renaissance likewise. Most Florentine and Sienese palaces and those in other places, as well as many churches appear externally as massive ashlar structures, while the mass of the wall is built of rough stones or bricks, and the ashlars merely form the facing or inserted work. Thus the Pitti and Strozzi Palaces in Florence, surprising by massive rustication of their sandstone ashlars,

28 and also the Cancellaria in Rome with its wall surfaces of travertine stone and inserted window enclosures in white marble!

The unfinished Palace Farnese in Piacenza, some buildings in Bologna and in Rome (Figs. 24 a, b, c, h) afford an instructive illustration, how in process of building, spaces were left for string courses and architraves and these were backed by brick courses, which were removed as required in setting the dressed stones; the space for the window enclosure was left, and the opening for light merely enclosed by a border. Elsewhere the bricks are set diagonally in the mass of the masonry (Figs. 24 a, c, h), or spaces are again left for setting the architectural members, as might be seen on the Badia near Fiesole, on the Cathedral in Florence, and on S. Croce, before they were faced with marble (Figs. 23, 24 a to h).

The nature of the execution in the different periods, but especially that of mediaeval buildings (in which each stone should be set in its true place) was usually at the cost of other esteemed, deserving or undeserving ways, since earlier and later, then as now, men built in various ways, good and bad, and there are especially not wanting from the earliest and the earlier times examples of the fall of new buildings,
29 scarcely completed or still under construction. This view,
30 that Otte[14] has expressed with further deductions and proofs, is true of the construction of all periods and in all lands; it is just as applicable to antique architecture, as to that of the middle ages, that of the Renaissance as that of the most recent period. Therefore we have to indicate neither progress nor decadence in execution, merely good and bad together, but nothing attaining the same height as the works of the Greeks

Note 14. See Otte, H. Handb.d.Kunstarchaeol.d.Deutsch. Mittelalters. Leipzig.1883. Vol. 1. p. 40 et seq.

The morbid longing to see the conception also executed as soon as possible, that strongly prevailed during the Renaissance period, the pressure of the persons controlling the

permitted but few structures of the Renaissance to attain exceptional eminence. Compare in this respect the execution in the court of the Cancellaria in Rome with the inconceivable jointing and cementing in place of the marble archivolts for the colonnade on the ground level (Figs.24 e, f).

Thus in the construction of the walls not much new is attempted in the matter of construction and in practical execution, -- nothing can be learned from the condition of the monuments concerning the use of iron in the interior of the walls (dowells, pins, cramps), -- but in the matter of form, attainments may be mentioned, especially in the treatment and gradation of the ashlar work.

19. Dressing and Coursing of Ashlars.

The mode of dressing and of decorating the ashlars, their form, size, and jointing, were always subjects of special consideration, in which the boss and its border, with the mode of jointing, come into consideration.

Experiments in this are as old as the history of architecture; they were made independently of each other in all periods and in all countries, -- in Asia, Greece, Italy, France, and Germany, -- and yet they exhibit allied forms and methods. Already the Solomon of the Bible caused the ashlars of the walls of his capital, Jerusalem, to be made from great blocks of limestone, and the stones to be surrounded by a marginal draft .49 ft. wide, the boss being fine pointed and projecting slightly, -- one of the oldest examples of ashlars with a boss and drafterd margins!

20. Ashlars with Convex Bosses.

In the Rome of the Kings, on the Servian wall upon the Aventine, and on the Roman Forum, on the Dipylon Gate in Athens, on the walls of the Stoa of Hadrian in Athens, on the Etruscan walls near Fiesole, on the mediaeval castles in Badenweiler and Rötteln, on the Neckar Castle near Heidelberg (Schadeck), and on many other monuments (Figs. 25 a to o), -- everywhere is found the same things; the drafted margin and convex boss, the latter projecting sometimes more, sometimes l less, up to .98 ft. at Schadeck on the Neckar.

21. Ashlars Plane with Surfaces dressed in special Ways.

Besides the ashlars with convex bosses and drafted margins, there occur in all periods and in all civilized states plane stones with and without drafted margins,[15] and in Italy, France, and Germany, there are such with special chiseling on the face, all before the beginning of the Renaissance period.

Note 15. Compare Part II, Vol. 1, Figs. 35, 45; Vol 2, Figs. 30, 97; of this Handbook.

On the so-called Tomb of the Horatii and Curatii near Albano, also called the Tomb of Aruns (erected at about the date of the Birth of Christ) is indeed to be seen the oldest example
31/ ple of this ornamental chiseling, then later varieties on the
32 buildings of the Carlovingian period, on the Church of S. George in Baden, on the Cathedral in Mittellzell on the island of Reichenau, on the belfrey of castle Röttler in Baden, on the Romanesque buildings of Aquitaine (Southern France), on the Castle of Limburg in the Palatinate, in the crypt of the Cathedral of Strasburg, and simpler dressing on the Cathedrals in Metz, Worms, Spires, etc., which are all dated with tolerable accuracy. These bits of art are pretty widely scattered in place and time, so that one cannot prove any connection, but merely a whim, which recurs whenever men no longer knew how to make anything sensible.

An art fully conscious of its high aims, like the Renaissance, could neither borrow nor learn from this. Among the examples in Fig. 25 a to o are to be seen a few sketches with cuts of less depth, which in a weak way ornament the bosses.

22. Ashlars with moulded Borders and sunken Joints; Template Bosses.

In Roman art indeed occur ashlars with moulded borders,[16] and also those with sunken joints (Cecilia Metella in Rome) and with bosses dressed off to a fixed template, that the Renaissance gladly appreciated for its new creations, when it had abandoned the architectural system (rustica) of the Italian middle ages, of[17] cutting ashlars with stones, high, low, and of any length.

Note 16. Compare Part II, Vol. 2, Fig. 111, of this Handbook.

Note 17. A fine collection of ashlar forms in the Renaissance is given by Auer in Die Quaderbossirung der Italienischen Renaissance. Vienna. 1887.

How refractory and uncouth such rustication may appear, when it extends through several stories of a facade and has bold and uniformly heavy bosses, is shown by the masonry of the Gothic Palace Ricciarelli in Volterra (Fig. 26).

23. Ashlars with Diamond Panels.

Besides this borrowing of the treatment of ashlars from the antique and the middle ages, and in addition to the development of the suggestion thereby given, there likewise occur new forms in the so-called "ashlars with diamond panels". Sometimes square, sometimes oblong on the visible surface, their crystalline edges either appear quite flat or project strongly, either directly from the surface or surrounded by a moulding. Examples in Verona (Palace Bellini), Venice, Bologna
33 (Palace Bevilacqua, Figs. 27, 28), Cremona (quite flat square facets), and Ferrara (Palace dei Diamanti). Convex,and concave facets, an independence and a violation of the principles of sound stone construction are found on the ashlar work near the water-gate under the Bridge of Sighs on the Palace Doge in Venice, and reeded cylindrical ashlars occur on the ashlar masonry of Palace Sapienza and of Palace Quirinal in Rome. (Fig. 29 r).

24. End and Bed Joints.

The location of the end and bed joints for bosses and sunken joints was in antiquity sometimes in the middle of the borders (Temple of Vesta at Rome), and sometimes coincided with the angle of the sinking (Cecilia Metella in Rome), which arrangements were followed by the Renaissance masters, as this falls in the middle of the groove on Palace Strozzi in Florence, at the edge of the boss on Palace Guadigni, and the same may be seen on Palace Gondi. On the latter, a part of the end joint is also concealed by the overlapping of the boss (Fig.29p)

25. False Joints.

On the mediaeval masonry of Palace Vecchio in Florence, the joints likewise fall in the middle of the groove, and on Palace

Linotta in Rome, "false" bed joints are formed (false end joints were also common in antiquity), for two courses are there apparently cut in one block (Fig. 29 n).

26. Border Treatment.

The treatment of the border or edge cutting was done only for reasons of form; but the material and the mode of setting also had some influence.

In the 6 th century(B.C),it was customary among Greeks and Romans to dress the beds of the ashlars over their entire extent and to set them on each other in courses without mortar; in the 5 th century (B.C.), men were satisfied to merely level off the edges, making the bearing surfaces sufficiently large to safely support the load (Fig. 29, a to d).

The kind shown in Fig. 29 d was not employed by the Renaissance, but those shown in Fig. 29 a, b, c, were used, always with the help of fine mortar (perhaps only lime paste) to even off the roughnesses of the surfaces in contact, and to prevent the spalling of the deges, since the dressing of the bed and end surfaces of the ashlars as done by the ancients was much too minute and costly, and was not considered.

Insertion of strips of metal or pasteboard, as now used in the setting of ashlars, are not known to me. In Arab aud mediaeval buildings, lead sheets in the bed joints were in use.

27. Method of Working.

We must mention another technical matter concerning the treatment of the edges, which will show that the Early Renaissance did not adhere to the antique, but to the mediaeval methods of working. The entire middle ages exhibits a peculiar treatment of the edges, both on this side and beyond the Alps, for moulded work, with which I likewise include columns and octagonal pillars. They are cut by themselves, while the adjoining surfaces show a different treatment. As examples theeeof may serve the engaged columns on the exterior of the Cathedral of Spires, the moulded work on the exterior and interior of the Abbey Church in Schwarzach in Baden, the angle columns in Or S. Michele, the piers in the cloister of S. Croce, the shafts and bases of the columns in S. Maria Novella in

Florence, together with many others (Figs. 30 a, b, c, d, f).

28. Polished Borders and Surfaces.

But the moulded work on Palace Strozzi in Florence, the great pilasters on the exterior of S. Maria di Carignano in Genoa, as well as those in the base of the principal facade of S. Pietro, exhibit the same method, whereby the tool marks are polised off on the edges, and the pointed ashlars of Palace Giraud with many others exhibit the polished margins, with close joints, using the finest white mortar joints (Figs. 30 e, g, k, l, m, n, o).

Polished surfaces are shown by the columns and mouldings of the Early Renaissance in the interiors of the Church of S. Spirito and that of S. Lorenze, after antique and protorenaissance models, the later sandstone architecture of the Chapel of the Medeci and of Palace Uffizi in Florence, with close joints of scarcely 1/16 th inch thickness. But the most finely wrought visible surfaces of ashlars are already to be found on the Cathedral in Como (Fig. 31).

29. Buildings in Several Stories.

To the many antique forms, the Renaissance only added the diamond ashlar as a novel mode of expression for animating the surfaces of ashlars, and with an uniform division of the facade, as on the palaces in Bologna and Ferrara, that have been mentioned, this does not appeal to my feeling as the happiest gift in the treasures of form of the new art, and especially not in comparison with another great innovation, the already mentioned gradation in expression of the ashlars in buildings of several stories, which must be characterized as an achievement indeed!

The antique sought to produce a gradation in expression in their buildings of several stories by decorating the lowest story with engaged Doric columns, the second with Ionic, the third with Corinthian, thus endeavoring to produce a transition from the massive through the elegant to the magnificent, which the Renaissance adopted without change. But the expenditure for producing this effect was a considerable and greater one, wherefore the Early period sought to secure it in a

simpler way in its palace buildings. A conscious, or probably an unconscious attempt in the latter way was made on the
37 mediaeval Palace Bargello in Florence (Fig. 32), when they built in the lower story with plain ashlars in high courses, in the next with those of less height, and with small split stones in the uppermost, with a tolerable similarity of courses in the different stories, while the experiment was dropped in the neighboring Palace Vecchio (Fig. 33).

38 30. Graduated Rustication.

On Palace Pitti a first attempt was made in gradation, so far as the rusticated ashlars in the ground story are rather more massive, though more pleasing, for individual bosses project beyond the others, but with entire irregularity, while in the upper stories is found a greater similarity and less projection (Fig. 33). A definite and regularly recurring bond and a fixed ratio of length to height is not carried out in the ashlars of the ground story, but on the contrary, a regular alternation of joints is attempted in the piers between the windows of the upper stories. The stones are sometimes square on the visible surface (1 to 1); the ratio of height to length is sometimes as great as 1 to 5 1/2, while in the antique period the normal ratio amounted to 1 to 2 1/2 in extreme cases. In the lower story is also the largest Renaissance ashlar in Tuscany with a length of nearly 29.52 ft!

The credit for first systematizing the innovation in a monumental and perfected way is due to the architect of Palace Riccardi, the old master Michelozzo. The bold rustication above the base is terminated in the principal story by the window sill course; above it extends plane dressed ashlars in courses with sunken joints, over these being plane coursed masonry (Fig. 35). The same system is employed in Giuliano San Gallo's Palace Gondi (Fig. 36), but with the difference, that in the ground story, ashlars of uniform cylindrical section are used instead of irregularly rusticated ones.

But in both there is as little uniformity in height of ashlar courses of a story, as in Palace Pitti and its mediaeval predecessors, and no attention is paid to a regular bonded

coursing, but there is attained what antique art could only do by the use of its richest means; fortress-like sturdiness in the lower story, over this being solid and stable elegance, ending with the entirely plane exterior and the easy magnificence of the crowning main cornice, -- all in the surfaces and without other architectural elements.

31. Dimensions of Stones.

The adherence to the dimensions of the stones, i.e., the ratio of height to length of the visible surface, is in the buildings mentioned, as well as in Palace Strozzi to be cited, in which the ashlar bosses are cut to the same pattern in all the stones, only moderate and by no means uniform. It varies from 1 to 1, 1 to 1 1/2, 1 to 2, 1 to 2 1/2, 1 to 3, 1 to 4, up to 1 to 8 1/2, a circumstance which lends to the whole more life and individuality, to which too little attention is devoted in so many modern imitations.

32. Masons' Marks; Projection of Bosses. Tools.

On the bosses of the stones in the ground story of Palace Riccardi are to be mentioned masons' marks on the rough bosses in the simple forms of a circle (o) and of a plus sign (+), which do not recur on any other palace (Fig. 30 h, i). The massiveness of the bosses on this masonry may be expressed by the statement, that they project 3.28 ft. on the terrace walls of Palace Pitti!

The tools for dressing these stones and for setting them are given in Figs. 37 and 38, from the descriptions and drawings of the master Nicola Zabaglia in his work published in 1743, and from those of L. B. Alberti.

33. Hoisting Apparatus.

The workmanship is conservative, and the same tools were used then as in the preceding centuries. Machines had not yet encroached upon it.

The masses for the structure had to be moved, they must be quarried, transported to the site of the building, and be raised in case of buildings of several stories; scaffolding was necessary for raising and setting the stones and also for the workmen to stand upon. The Renaissance masters were confronted

with the problem, when they had to do with works belonging with the greatest of all times. Yet they could count upon arrangements tested for centuries, beyond which they never progressed.

The ancient peoples had to transport and set massive build-
41 ing stones: the obelisks in Egypt, granite monoliths sometimes over 105 ft. high; ashlars in walls with faces 19.7 × 3.6 ft. (city walls in Jerusalem), lintels over doorways 29.5 ft. long, 9.84 ft. wide and 3.28 ft. deep (Royal Tomb in Mycenae);
42 in the time of Pericles, marble beams and architraves over 19.7 ft. long had to be raised; the largest building stones in the world were desired for the temple terrace at Baalbec (Great Temple by Antoninus Pius, 138 - 161 A.D.) with 64 ft. length, 13.8 ft. in height and width, and which had moreover to be raised 23 ft.

It was especially the epoch of Constantine the Great, which pleased itself with the use of great monoliths, and Diocletian had previously brought from the East for his Baths immense granite columns 14.75 ft. in circumference. This "cubic scale" was even employed by the 3 d and 4 th centuries B.C. in their creations in sculpture! The Tomb of Theoderic in Ravenna required for its covering a single circular block of stone over 36 ft. in diameter, which was transported from Dalmatia and must have been raised on the external walls.

The Carlovinginas, and also particularly the rulers in Italy in the Early Renaissance period were pleased to employ large stones as materials for their structures, evidence of which is given by the granite columns in the quarries on the mountain road and the ashlars with bosses on Palace Pitti in Florence, of nearly 29.5 ft. length, the 3.28 ft. projections of the
43 bosses of the stones of the terrace of the palace mentioned. (The terrace masonry indeed belongs to the recent period).

We see Egyptians, Greeks, Syrians, Romans, Franks, and Italians pursuing the path of these endeavors, though in the most diverse periods. But these aims have no common starting or middle point.

The middle ages, both on this side and beyond the Alps, keeps itself free in somewhat limited fashion and for the

reasons already given from this system, especially in its later developments.

44 With the introduction of lime mortar on a great scale in
45 architectural construction, the use of large stones set entirely without mortar for walls and vaults ended in many places, though not for pillars and ceiling beams, the thickness of the walls being increased.

The setting of the large blocks was done by the aid of simple lifting machines, described by Vitruvius.[21] The roller and the pulley, the windlass and the tread-wheel,[22] were already known to the ancients in the earliest times. Men and animals
46 had to operate them, as shown by Egyptian and Assyrian representations in relief, an illustration of which is given in Fig. 39, which exhibits a stone colossus on a wooden sledge with rollers underneath, dragged by ropes in men's hands with the help of great levers.

Note 21. See Book X, Chapter 2, et seq.

Note 22. See Part II, Vol. 2, Fig. 211, of this Handbook; also Merkel, C. Die Ingenieurtechnik in Altertum. p.24. 1899. Berlin.

For raising smaller dressed stones, the ancients already employed the lewis and the tongs, tools which we still use.((Figs. 37, 38).

How the Renaissance masters shaped their rollers, pulleys, windlasses, etc., we are instructed by Master Zabaglia and Cavalier Fontana, from whose works we give illustrations in Fig. 40. They were likewise confronted by the same problem as the Egyptians formerly were, -- to raise and set up one of the largest obelisks. How they solved it is shown by Fontana's work thereon and the illustrations taken from it.(Figs. 41, 42).

Egyptians and Assyrians employed for this work the hands of thousands of slaves: the Renaissance substituted horses for them, solved the problem without accident, completed the work without a precedent, which with our advanced methods and the help of steam engines and electricity would be a problem for experts.

34. Scaffolding.

Still higher were the requirements on engineering, on gifts in the domain of mechanics, from the demand for heavier building stones on buildings of greater height, and by the construction of centering for vaulting the colossal domes of S. Maria d.Fiore in Florence and S. Pietro in Rome.[23] The particular endeavor in these two buildings and also in others of allied design (the very much smaller dome of S. Maria di. Carignano in Genoa, according to the drawings of Alessi in the building records) was to avoid supporting the centering of the dome from the floor, but to do this from the cornice or the walls of the drum. The first attempt on a large scale was made by Filippo di Ser Brunellesco to his eternal fame, who was followed by the Renaissance and Genoese masters and others.

Note 23. Compare Durm. J. Zwei Grossconstructionen der Renaissance: Berlin. 1887.

The problem of the dome of the Pantheon was treated with considerably greater ease, which rested on thick external walls of no great height, while the domes in Florence, Rome and Genoa, were to be erected on the drum for the admission of light.

How the construction of the tunnel vault over the central aisle of S. Peter's was executed is shown by Fig. 48, after the description by Fontana.

Chapter 5. Brick Masonry.

35. Buildings of Brickwork.

To walls of natural stones are to be added those of bricks left visible, in which those works entirely executed in brickwork, even in their ornamental parts, are to be kept separate from those, which show only the external visible surfaces of brickwork as a durable mode of construction, between stone bases, belts, cornices, and the enclosures of doors and windows, and which do not have to serve as a basis for other ornamentation.

Walls of air-dried bricks were already known to Egyptian antiquity; bricks measuring 10 × 4 3/4 × 2 1/2 inches were used

and Nile mud served for mortar. In spite of the rainless climate, the external surface was coated with a protecting stucco (Fragment of wall near the Great Sphynx not far from Cairo). The Assyrians set their air-dried bricks with bitumen and protected them from the effects of weathering by colored glazed tiles.

Walls of burned bricks were introduced into Italy and Greece at the same time during the 4 th century B.C. Bright yellow and red bricks were burned in Rome and both kinds were frequently employed together, as shown by a tomb before Gate S. Sebastiano in Rome (usually called Temple of Deus Rediculus), where the base, the pilasters, the architrave, the main and pediment cornices, and the window enclosure are of the red material, the panels thereby enclosed exhibiting a lighter one. This polychromatic treatment and the prominence of the building thereby produced, doubtless permits the assumption of an intended monumental polychromy.

The execution of these tombs on the Via Appia is peculiar, for all ornamental parts of the building, like the bases and
48 capitals of the pilasters or columns, egg-and-dart mouldings, string-courses, and the subdivisions of the architrave are made of normal bricks laid in courses, a method likewise sh shown by the external walls of the Amphitheatre Castrense in Rome.[24] The ornamental work produces the impression that after setting, this was cut out of the normal bricks with a sharp chisel. On the contrary, Stiller[25] believes, that these parts were each first modeled as a whole, then cut into pieces and burned, since cut bricks are not durable on the exterior.

Note 24. See Part II, Vol. 2, Fig. 131, of this Handbook.

Note 25. See Zeit.f.Bild.Kunst. Vol. 13 (1878), p.114.

I incline most to the first assumption. Other requirements can be placed on the good Roman bricks than on our modern products! Where the bricks of the surfaces of the walls abut against moulded members, they are likewise cut away and are as well preserved as others on the building. They are 9 1/2 to 10 or even 11 3/4 ins. long and have a thickness of only 1 3/16 ins. with mortar joints 1/8 to 3/16 in. thick. A tomb also on the Via Appia shows behind this finely jointed brick

masonry the characteristic concrete masonry of the imperial period.

36. Rough Brickwork.

The monuments mentioned should be regarded as structures of rough brick masonry, but in them the joints are not emphasized in any striking or peculiar manner, contrary to the northern mediaeval custom.

The middle ages employed in Italy, especially in Upper Italy bricks left visible on the facades of its buildings, as shown by the churches in Pavia, Chiaravalle, Milan, Crema, Cremona, Caraveggio, Monza, Brescia, Bologna, etc. [26], and these all have red brickwork with white joints.

On the Certosa in Pavia (see adjacent plate), the bricks are stained blood-red and the joints are painted white, indeed as required by the variation of the materials in form and color and by the careless mode of execution. Here the antique likewise again stands higher than the middle ages!

The dimensions of the bricks on the mediaeval Baptistery in Cremona are; lengths 9 to 9 7/8 ins., thickness 2 9/16 ins. with mortar joints 1/4 to 3/8 in. thick.

Note 26. Compare Illustrations of such churches in Gruner, L. Terra Cotta Architecture of North Italy in 14 th and 15 th centuries. London. 1867.

For a rather decorative treatment of the exterior, there occur beside bricks in this period still smaller brightly colored plastered surfaces (Chiaravalle, S. Gottardo in Milan), as well as net-work patterns, produced by the bond with the use of red and yellow bricks (S. Francesco in Pavia).

Translated into marble, we find this mode of decoration on the wall surfaces of the Palace Doge in Venice and on the higher portions of the Basilica in Vicenza, where reddish and white marble slabs are combined into a regularly recurring surface pattern, a system of ornamentation, that has indeed its justification in the great unbroken surfaces of the walls.

Scroll ornaments in the spandrels of the arches with red ornament on a green ground or conversely, with good decorative effect, are found on Palace Visconti in Pavia, and an alternation of differently colored bricks in the arches, green conso-

consoles, yellow and green belts with foliage, white egg-and-dart mouldings between red and green leaves, occur on the apses of the Certosa near Pavia(See adjacent plate).

49 While in ancient Rome, the ornamental portions were composed of thin normal bricks, larger and especially made moulded bricks were employed in Italy during the middle ages. The generally very richly developed and wide archivolts of pointed-arched windows with twisted rounds, ascending foliage, scrolls with little climbing figures, etc. (compare cathedral in Monza) required another method. The Renaissance masters adhered to this, as for example, B. Filarete with his charmingly ornamented archivolts on Hospital Maggiore in Milan (Fig. 8). In a particularly beautiful manner and in the style of the noblest Early Renaissance are the terra cottas on the entrance portal of the Church S. di Sperandio da Mantova (1478-80) in Bologna, and those on the small and charmingly designed Oratory dello Spirito Santo (1481-97) likewise in Bologna and remaining to us.(Fig. 426). Francesco Malagussi Valeri says of the former in his book mentioned below:--[27]. (See the original German edition for the Italian paragraph quoted).

Note 27. L'Architettura di Bologna nel Rinascimento. p.78. Bologna. 1899.

The method assumed by Hiller for the Renaissance capitals of tombs on the Via Appia appears to have been actually employed here, and this is certainly the case with the flat pieces.

The Renaissance did not attempt a surface decoration with stones of different colors and with definite bonding patterns, since it worked with such emphasized bonds just as little as did the antique.

In the sense of the patterned wall surfaces of Palace Doge in Venice with variously colored marble slabs, according to my knowledge an attempt was made only on Chapel Colleoni in Bergamo, -- which resulted badly enough. Black, white, and red marble slabs form cubes, that appear to project from the surface, a motive just as absurd for the covering of a wall, as for that of a floor.

The second species, where the bricks are only arranged as a

covering of the surfaces between belts, cornices, and windows, appertains to the great examples of Palace Riccardo-Manelli in Florence, Palace Farnese in Rome, as well as to the court facade of the Cancellaria there, and also to many of the Bolognese palaces, among many others. Buildings constructed of bricks from the street levels to the roof cornice are Casa Carraci and Palace Albergati (begun 1520), both in Bologna.

Filarete in his essay (Book 9") prescribes the following dimensions for bricks:- 6 inches long, 3 inches wide and 1 1/2 inches thick, demanding a "denajo" for each one.

On S. Maria della Grazie in Milan, with a by no means regular bonding, the bricks measure 11 ins. long, 4 5/16 to 4 3/4 ins. wide, and 2 3/8 to 2 3/4 ins. thick, with mortar joints 3/4 in. thick (See Fig. 24 g, i).

No innovations, differeing from what the antique and the
50 middle ages did, are according to the foregoing to be found in this respect in the Renaissance. No attention was paid to the ornamental effect of any of the well known Northern bonds, (cross bond, block bond, etc.), or of the joints by a special treatment of the mortar lines, as was in use in Lower Germany, for instance.

87. Majolicas of the Robbias.

But if we omit the flat Assyrian and other oriental clay slabs, they created one new thing in the introduction of colored terra cotta (majolica) figure pieces in the decoration of facades, in which the Family of Robbia made itself immortal.

Little white glazed figures on a light blue ground and in medallion form were arranged in a regular way in the spandrels of arcades, as the children on the facade of the Foundling Asylum in Florence show in the most charming manner. Over the doors and windows of houses, palaces, and churches, we may see the form of the Madonna in similar colors or smaller representations of Biblical events, often enclosed by realistically sculptured and brightly colored festoons of fruits, violet and yellow fruits among green leaves, cupids'
51 heads on a blue ground, garlands of fruits and flowers suspended between candelabra on friezes (S. Maria delle Carceri in Prato), shells arranged like tiles on the panels of vaults

(Portico of Chapel Pazzi in Florence, Villa Poggio at Cajano, Fig. 44). On sheltered localities, gilding was even added to enrich these colored majolicas, as on the sacred fountain in the sacristy of S. Maria Novella and on the small altar canopy in Ss. Apostoli in Florence, where in spite of cleaning with water and brushes, vestiges of gold have not entirely disappeared. Many works can be properly judged and understood only with this addition of gold.

But the most wonderful effect is due to figure compositions extending like friezes beneath the window sills, for which the highest fame is due to that executed on the Hospital del Ceppo in Pistoja, the seven mercies with other small figures. It is truly monumental and is especially beautiful in composition in its limited use of colors. Coats of arms occur in form of medallions with the Ave Maria richly bordered with garlands of fruits. The plain facade in but two stories with its deep porticos resting on slender columns, the small rectangular windows over the frieze, the strongly projecting roof 52 cornice casting shadows, the dark color of the bricks, the light plastered surfaces of the upper story, all harmonize together to enhance the charm of color, and to create an ornamental work, yet not overloaded, a second to which cannot be seen in the monumental art of all ages in this domain and in this style. This single endeavor in the matter of the treatment of facades suffices to ensure honor and eternal fame to the new art (Fig. 45)!

38. Plastered Facades; Sgraffito.

A protecting coating of lime mortar for masonry of less valuable materials, on that of doubtful appearance, or that built of small pieces of different kinds of stone, was in use from ancient times until this one. What was required in all periods and places for judicious reasons, Renaissance art could not refuse; for it knew as little as the most modern period how to create a substitute for stucco or to supplant it. Means were frequently lacking in earlier, as in modern times, even in works otherwise conceived on a great scale, for the use of monumental materials on the exterior of a building.

But the masters of late mediaeval art and of the Early Renaissance knew how to make a virtue of necessity, when they made unsightly plastered surfaces the basis for an artistic system of decoration, that may be considered indestructible, since as long duration was assured to it as to the stucco itself.

This ornamentation was at first limited to the execution of decorative friezes, borders around window openings, to subdivision into ashlar courses, in whose place figure representations later ocurred, or even the entire available surface of the walls was covered with ornaments, grotesques, medallions, and figure compositions. The delicate drawings extended like a tapestry between the structural parts of the facade and animated in a harmonious way the otherwise cold surfaces of the walls.

The system of ornamentation termed "scrape-painting" (sgraffito) by the Germans especially flourished in Florence, the native home of the Renaissance, and is a kind of cameo work, a drak drawing on a light ground, when a dark ground is first applied, usually black but sometimes of other colors (brown, green, blue, or red), followed by a white or yellow coating, to which the design is transferred while it is still wet, the outlines being scraped out with iron tools, with which it is then hatched. A fresco drawing by Vasari gave the earliest directions for it (1512-74). The French took it up again in 1770, but this did not continue long, till in the middle of the last century, Semper again introduced it in Germany. It indeed found spirited acceptance, but in our rapidly living era, soon became disused again.[29]

Note 29. For new directions for the execution of sgraffito, see:-- Romberg's Zeit. f.Prakt.Bauk. 1875-6. Also see Part III, Vol. 2, Heft. 1 (Abth. 3, Absch. 1, Chap.4, under a) of this Handbook.

As magnificent evidence of this mode of decoration in Florence are to be mentioned the sgraffitos on Palace Guadigni, which in a simple manner exhibit its principles; friezes below the window sills, subdivision into ashlars of the wall piers between the window openings, medallions in the spandrels

of the arches; then the best preserved sgraffitos on Palace Torregiani, built by Baccio d'Agnolo, with a frieze below the second window sill course, figure compositions within rich
53 borders on the wall piers, and finally most richly decorated on the House adorned with the arms of the Medici (No. 24) in Borgo degli Albizzi (Palace Montalvi), covering the wall surface from the roof cornice to the street pavement. Realistic garlands of fruits, entire figures of cupids in niches and frames of fanciful forms, and appropriate ornaments alternate with each other in the richest abundance (Fig. 46). Likewise in the neighboring Tuscan cities are found facades of houses ornamented by sgraffitos, and papal Rome also makes use of this method in an extended and thoroughly artistic way in the grand style, as shown by the sgraffitos on the street and court facades of the most diverse houses and palaces, thus a House in Vicolo Calabraga with beautifully executed frieze and window piers, then a building in Vicolo Sugarelli with a frieze above the subdivision into ashlars, and further one such in Via dei Coronari, and lastly the court facades of a building on the Street Scossa Cavelli, -- a complete semblance of architecture with columns and arches.[30]

Note 30. The examples are to be found in the great work with plates:-- Maccari, E. Roma Grachffitie Iarcscuri. Secolo XV, XVI. Pls. 8, 11, 13, 22, in which the accuracy of the names of streets can now no longer be verified.

39. Chiaoscuro.

Another and softer mode of decoration, in which the pencil again obtains its rights instead of the iron point, is that in Chiaoscuro, from the tone of the painted figure and ornamental representations, in which the same decorative motives
54 prevail as in sgraffito, only with the difference, that figure compositions predominate in it, as shown by the example from the House in the Via della Maschera d'Oro in Rome, a work of Maturino Fiorentino and Polidoro da Caravaggio (Fig. 47); a too rich figure frieze on the ground story, entire figures on the window piers of the first and second stories, and figure groups on the second story with cartouches and trophies above the windows, together with the greatest plainness of

of the facade. The artists have been satisfied with the simplest rectangular window architraves without mouldings, caps, or other accessories in relief, in order to make their system of ornamentation prominent, -- the only correct principle, according to which they could proceed with the chosen method of ornamentation.

As sgraffito was a drawing on the wet plaster ground, so is chiaroscuro a painting thereon with a single color in different shades.

40. Fresco Decoration.

Men were not satisfied with chiaroscuro painting for the ornamentation of facades; this received an increased effect by the addition of different colors; men resorted to fresco painting on the exterior, but this was not long durable in
55 the mild climate of Italy, and the enjoyment of this ornamentation was not generally of long duration.

At first the same ground principles as of surface decoration were followed, which were dominant in sgraffito and chiaroscura, but a mistake was made, when men began to go further and to imitate and represent stone architecture. Attempts of this kind are still to be recognized in faded vestiges in Upper Italy, especially in and near Genoa, as well as in Ber-
56 gamo, in faded painted fluted large pilasters or columns, extending through one or more stories, with gilded bases and capitals or imitation marble shafts, with cast shadows, that are all incorrect according to the position of the sun, the effect of semicircular niches with painted bronze figures therein, and the like, are and remain misconceptions. Painting can aid the effect; but there is no architecture, which cannot be executed in relief for lack of means.

In the sense of this aid, the Early Renaissance has produced appropriate and perfect works, as for example on the Palace del Consiglio, on the garden of Palace Socca-Trezze, on houses and palaces of Place delle Erbe in Verona, on buildings in Bergamo, Venice, Mantua, etc. In many other cases it was limited to the ornamental, or the effect of parts executed in relief were heightened by the application of color, when marble capitals were gilded, the sculptured arabesques of pilasters

were overlaid with gold, and the ground was painted
slate color, the grounds of friezes were also painte
(Fig. 48).

In spite of this error, -- and in what art develop
style may not these be pointed out, -- to the Renais
incontestably due the highest merit for the develop
extension of the decoration of facades.

41. Stucco Facades.

But this most inventive of all art periods did not
with the monochrome or polychrome ornamentation of w
faces; it demanded an increased alternation of light
de, especially with building materials of light colo
liefs with the use of stucco. The High Renaissance
ly makes use of this effective manner of ornamentati
which Fig. 49 gives a fine example from Palace Spada
The Renaissance here again created its own means. T
vating magnificence of this mode of decoration likew
57 ured on this side of the Alps good fruits, as many f
the 17 th century in South German cities show (House
Munich).

42. Mosaic Decorations of Facades and Interior

The construction of colored ornamental facades in
able materials led to the use of mosaics, made of sm
es of colored marble, terra cotta, composition, or
find mosaic work already among the Romans on floors,
and ceilings, it attained a high degree of perfectio
the Byzantines (constantinople and Ravenna): like th
Christian, mediaeval art in Italy made extensive use
the cathedral in Orvieto being the finest example; e
churches in Rome, Venice, and Florence furnish evide
it (S. Maria Maggiore, S. Lorenzo f.l.Mura, in Rome,
iato in Florence, S. Marco in Venice, etc.).

As an external decoration, mosaic plays no part in
aissance; as an internal ornamentation of the walls
ing, it shows itself in the Church of S. Pietro stro
sound, and occasionally better than in the best succ
climax in the Byzantine empire, where it suffers fro
lack of freedom in the drawing, though unsurpassed

spbendor of coloring and in harmony.

In the imitation of famous oil paintings with the smalles pieces, most delicately graduated in color, which gleam on the walls of S. Peter's, this art goes almost too far, but not without precedent therein, as apparent in the famous an ique mosaic of the Capitoline doves.

43. Incrustations.

A last step in the monumental ornamentation of the surfac of facades is sought by "incrustation" with many colored sl of nobler material, behind which is concealed the massive a less costly building material. The Protorenaissance in Flo ence (S. Miniato, Badia, Baptistery) already brought it in use, relying on antique models. But only Venetian architec herein produced the best and most beautiful, as well as the most harmonious in the use of color, and in the choice of b tifully veined slabs of marble, which they knew how to skil fully combine, as shown by the North court facade and the s des of the Giants' Staircase in Palace Doge, the external w of the fore-court facade of School di S. Marco (1485), in V ice, with its peculiar perspective representations by marbl inlays. This method of creating a costly exterior by inexp sive means, which produces a dignified and truly beautiful pression, and which has remained good for four centuries, i again a merit of the Italian Renaissance.

Chapter 6. Wooden Architecture.

"Of a peculiar Italian external wooden architecture in th sense of the Northern wooden structures, there can be no as sertion, although certain combinations of wood occur in Ita mostly in connection with structures in which antique tradi tions may be recognised."

Semper. Der Styl. p. 347 et seq

44. Wooden Architecture.

The peasants' houses in Italian Tyrol on the slopes of th Alps mostly have an ornamental wooden framework only in the gable of the attic story, while the occupied stories beneat
58 this are solidly constructed of stone, but contain in their framework and their galleries reminiscences of a preceding

antique-like wooden architecture; they show us the complete abandonment of the half-timbered construction in a very definitely expressed way. It is possible and probable that the stone substructure of the period, when more wood was available in the Alpine regions, was preceded by one with wooden framework built into masonry, but we can scarcely prove its existence during the last thousand years (starting points in Bergamo' see Fig. 127).

Together with wood, stone likewise offered itself as a building material for the inhabitants; in a certain sense, it appeared ready for use in the boulders and loose stones on the mountain slopes, so that already in earlier times, the mixed method of construction was employed here. But men were then compelled to protect by projecting wooden roofs the stone masonry, which was not always properly built, but offered great resistance to wind and weather, thereby obtaining galleries and sleeping places around the house, protected from rain and snow.

Where similar conditions were elsewhere created by nature, we see allied methods in building. In the Bocche di Cattaro and in all Montenegro, the treeless mountains afford scarcely anything but stone; trees and orchards are planted, and therefore the inhabitants resort to stone construction for their huts and only use the costly wood and straw as a covering material. Stone houses with roofs of wood and straw are therefore not a structural eccentricity. The ancient civilized land of Italy was never depopulated, but it was so much the more exposed to the storms of war and the invasions of barbarians, and it had its forests thinned, their proper renewal being prevented by the unquiet times, was alread early compelled to economically use those still existing, whereby for this reason the development of a wooden architecture appeared impossible, such as is shown by the North with its abundant forests (Germany, France, England, Scandinavia, and Russia).

45. Peasants' Houses at Bologna in 14 th and 15 th Centuries.

If we resort to the archives for information, where the re-

reality does not exist, these at least afford drawings. Such from the Italian State archives (Disegno dell'Archivó di Stato) show us the appearance of the peasants' houses (Casa colonica)
59 at Bologna during the 14 th and 15 th centuries. We then see in this earliest period of the Renaissance only stone buildings with wooden rafters and tile roofs, but without an artistically constructed framework on the exterior (Figs. 50, 51).[81] Compare in this respect the two peasants' houses of the earlier epoch in Figs. 52, 53, from S. Gimigiano and Parreno.

Note 81. Facsimile reproduction from Malaguzzi-Valeri. L' Architettura di Bologna nel Rinascimento. p. 149, Figs. 52, 53. Bologna. 1899.

46. Cornices with Wooden Rafters.

In mediaeval and Early Renaissance cities, cornices with consoles and battlements crowned the structures at top, and only when these disappeared, did the strongly projecting antique wooden roof with overhanging rafters assume its ancient rights. Only this portion of the wooden roof construction could become an object of artistic treatment, and the Italian Renaissance also limited itself to this, since it neither could nor desired to consider architecturally low half-timber work with wooden posts, girts, and purlins, together with a display of crossed straight and curved timbers between them, the spaces being filled by thin masonry. It is and remains a mode of construction, even if it certainly is graceful, which is yet so attractive, that it has led the most modern architects to transfer it to city and monumental house architecture.

60 61 The termination of the facade walls by a wooden cornice resulting from the construction of the roof is shown by the Early Christian style, the Protorenaissance, and then the Transition style, the most charming example (Fig. 54) of which is given by the roof-framing of the so-called Bigallo in Florence (by Orcagna, 1380 ?), and finally extending into the Renaissance, is exhibited by the Palaces of the Pisans and Florentines. These splendid cornices projected as much as 6.56 ft., and their structural and artistic treatment is shown by a drawing of Sandro Botticelli (1437-1515), which is published

in the work mentioned below.[33]

Note 33. Müntz, E. La Renaissance en Italie et en France. p. 388. Paris. 1885.

A purely wooden structure is executed in a beautiful and
62 characteristic way, a hood over the entrance doorway of the Cathedral in Pisa, which shows in an entirely different way, how the good period of the Renaissance also applied good taste and a sense of beauty in this wood-work, which concerns sound construction and use of form.(Fig. 55). As further examples, how beautiful and characteristic forms were wrought with the same constructive skill, is cited the covered balcony opposite the portico of Mercato Nuevo in Florence, adorned by the arms of the Medeci, and further the charming wooden cornice supported by stone columns in the upper story of the cloisters of S. Lorenzo, S. Croce, and the Badia, among others in Florence (Figs. 56 to 58), and lastly the massive and well carved wooden cornices of Palace Uffizi, Palace Guadigni, and of many other monuments in Florence and Pisa (Fig. 59).

How the Renaissance in Italy acted in the design of wooden protecting roofs over the entrances in enclosing walls appears from a doorway executed in the vicinity of the Certosa near Florence, an example recalling in its arrangement the antique roof of Puteoli, the specifications for which have been preserved for us.[34]

Note 34. Compare Part II, Vol. 2, Fig. 180, of this Handbook.

Chapter 7. Vaults and Wooden Ceilings.

47. Vaults.

Horizontal plain ceilings of wooden or stone beams, produced by timbers intersecting at right angles, or the so-called coffered ceilings cut in stone slabs, of moderate or wide spans, vaulted ceilings over all possible forms of plan, with
63 all possible heights and the most varied treatment, built of ashlars with or without mortar, of bricks, of concrete, or of a combination of the materials mentioned, massive ceilings of iron and tiles (Vitruvius), sham-vaulted ceilings of cypress laths coated with plaster (Vitruvius), were known to antiquity

and to the middle ages, although the latter did not produce any kind of novel structural vault, whose principle was not already known to the Romans and Byzantines, or had not actually been brought into use. From this is excepted only the late Gothic net vault, in which the ribs are fixed beneath the continuous surfaces of the vault, being frequently suspended from 8 to 12 inches beneath them (cathedral on the Reichenau in Mittelzell and in other places)[35] according to the nature of the execution.

Note 35. Further on this under D, Chapter 31; also in historical and technical relations, the magnificent works of Choisy; L'Art de Batir chez les Romains and L'Art de Batir chez les Byzantines (Paris 1883); also by the same author, Histoire de l'Architecture, (Vols. 1, 2, Paris, 1889), with their peculiar and interesting drawings; -- lastly, Part II, Vol. 2, pp. 161 - 208, of this Handbook.

The Renaissance took something from all these; but the best suggestions were derived from the creations of the Byzantine empire, the domes on pendentives, the most pregnant attainment of these greatest constructors of the antique world! It combined these domes with other forms of vaults into novel structures (S. Giustina in Padua, Fig. 60), raised the cylindrical drum above the pendentives with its admission of light and decoration by columns, and first placed upon it the stilted semicircular or pointed dome, that was crowned by a lantern, -- arrangements only employed on a small scale by the Byzantines, so far as may be learned from the remaining monuments (Fig. 61, S. Andrea delle Valle in Rome).

48. Compartment Vaults.

The compartment, umbrella, or melon-shaped vaults divided by moulded ribs (Chapel Pazzi in Fig. 62, Sacristy of S. Spirito, over an octagonal interior in Fig. 63, S. Maria delle Carcere in Prato, Sacristy of S. Lorenzo in Florence in Fig. 64) are likewise to be referred to Byzantine influences.

The vault and roof were one in the antique dome; whatever was assumed in the interior likewise controlled the exterior; nothing could be changed in the form once adopted, and therefore the vaults were for statical reasons partially invisible

externally, i.e., were partly concealed by vertical masonry. In accordance with these exceptions from the rule, the Proto-renaissance erected the Baptistery in Florence, and the masters in Upper Italy later followed the same principle, but
64 went so much further, that they permitted the vault to disap-
65 pear externally beneath a hip or conical roof. (Fig. 65; section through Baptistery in Florence). To this solution is opposed another, where the wall extends upwards and is resolved into an arcade, when small vaults corresponding to the openings of the arcade are set thereon above the visible external surface of the dome, a charmingly beautiful motive resulting therefrom. (Compare Plate opposite p. 48; the apsidal dome of the Certosa near Pavia).

49. Double Domes.

The greatest achievement of the Renaissance in construction was based on the preliminary advance mentioned, -- the Baptistery, -- and was the first erection of a double dome, or one with two shells, in which the forms of the external and internal shells of the dome did not at first differ much in outline.

"--- Then make over this another dome, to protect the inner one from dampness, and because it appears so much more magnificent and of greater curvature in form," says Master Filippo in his directions for the building. A practical and an esthetic purpose, to protect the internal dome from moisture and to give a more imposing appearance to the exterior, gave the impulse to this kind of domical vaulting, -- together with the impossibility of erecting a solid dome with the given thickness of the substructure without stepping back the external walls. An arrangement as on the Pantheon by construct-
66 ing a vault with less thickness than the supporting walls, and with a balanced stepping at the base of the external dome would certainly not have produced a happy appearance.

The idea is and remains novel and ingenious, but its practical execution must appear less original by reference to the preceding erection of the dome of the Baptistery, especially if one considers that there the apex loading is already provided by a lantern (Fig. 65). But the purpose remains antique, to

permit the dome itself to again appear as a form of roof.

The two shells of the dome are of unequal thickness, the external protecting dome being only 1/3 as thick as the internal dome over the interior, and they are connected together by eight angle ribs (Figs. 66, 67 a, b, d), whose edges appear externally visible, as well as by two intermediate ribs in each of the eight compartments of the cloister vault, by which the shells are better stiffened and become more stable. The ribs are spanned by 9 arches in height (Fig. 66), while the angle ribs are again connected together by a heavy wooden ring joined by iron bands at the connecting points, which indeed must oppose any deformation of the dome. A similar wooden ring was previously arranged on the Baptistery, except that it was there placed higher; the vaults are also there constructed of quarry stones and not of bricks, as on the dome of the Cathedral.

Note 36. See Durm, J. Zwei Grossconstructionen der Italienischen Renaissance. Berlin. 1887.

A further resistance to the stresses of the two domes is formed by the two massive galleries, the upper one of these being constructed of stone beams on which stone slabs are laid. Whether a special bonding was executed in the internal dome, over 6.56 ft. thick, is very hard to say, on account of the plaster coating on its external and internal surfaces; but wooden moulds for bricks are still preserved in the Cathedral, which show the various kinds and sizes, which were used in addition to the normal bricks, and it may accordingly be assumed properly, that ties were used at the returns (ribs), that fastened two abutting surfaces of the vaults together at the same time. It must then be said, that in the brick masonry are inserted many sandstone ashlars, especially in the projections and ribs.

In the great work mentioned below[37] are given the "scheme of the Depressed Arches (i.e., of the stress arches of the angle ribs extending to the adjacent intermediate ribs) at the apex", and the "scheme of the Stepped Bonding", and it is said in explanation thereof, that the two illustrations, one of which is reproduced in Fig. 67 b, show the scheme of construc-

construction of the depressed arches and of the vault surfaces of the external and internal domes. To this should further be added' the bed joints of the vault radiate from the centre of the corresponding arc; but the separate courses of masonry are not horizontal, but are coursed in a stepped bonding, or as otherwise said, in zigzag or herring-bone bond (Opus spicatum), or as Fontana expressed himself in the description of the vaulting of S. peter's, they are set in herring-bone bond. For this purpose, two shapes of bricks are employed, by the latter
68 of these being indeed meant, that given by Brunellesco in his directions for the building, a view that does not exactly need to be adopted. I understand by this bricks of hooked form, for which the model still exists. Otherwise, what is developed in the work mentioned, I fail to understand, and in view of the fact, that the two domical shells are still intact, plastered, painted, and roofed by tiles, I may contest the possibility of coming to a final decision on the position of the bricks in general.

Note 37. Stegmann, C. von. Die Architektur der Renaissance in Toscana, etc. p.44, Figs. 7, 8. Munich. 1896.

Instead of this very doubtful statement, according to which herring-bone masonry alternates with horizontal in an inharmonious way and where stone headers are inserted between both, Choisy presents in his Histoire of Architecture [38] another
69 view, when he declares:-- the dome is relatively light; by the manner of connecting the two shells, almost the strength of a solid one is secured. its material is concentrated where effective, the selected form favors in an increased way the erection without centering. There may be noted an unusual coursing of the voussoirs, which facilitates the erection without centering, for the usually tapered form of horizontal voussoirs are mingled with thouse arranged in spiral form (Fig. 67 a, d), which penetrate the two shells and the ribs. How Choisy believes the work to have been executed is shown by the illustrations given from his work. Herring-bone work and spiral coursing of voussoirs will be recognized and established here!

Note 38. Choisy. Histoire de l'Architecture. Vol. 2.pp.616-617.

The specification of Brunellesco for the erection of the Cathedral dome has experienced some editorial emendations in recent years, but these afford no changed points of view of value to us in technical respects. They follow here. The emended places are underlined.(In the original).

"1. First of all the inner dome is so shaped on the inside, that the angles are turned in the proportion of a sharp fifth. It is 3 3/4 braccias thick at the sprinigin and continues in the form of a pyramed to the eye above, where it measures 2 1/2 braccias in thickness.

2. Another dome is built above and outside this to protect it from water, more grandly and splendidly curved, 1 1/2 braccias thick at the base; it continues in the form of a pyramid as far as the eye above, where it is to be 2/3 braccia thick.

3. The space between one dome and the other is 2 braccias at the base, and in this space are to be the stairs for ascending between the domes; this space is to be 2 1/3 braccias at the eye above.

4. Make 24 ribs, 8 at the angles and 16 on the sides; each angle rib is 7 braccias on the outside; on each side are 2 ribs, each measuring 4 braccias at the base, which join together the two domes and are built in the form of a pyramid up to the eye, their dimensions being equal.

5. The 24 ribs with the domes are girdled by 6 rings of large and heavy stones, well cramped with iron, above the stones are iron chains, which encircle the domes with their ribs. The base is at the springing 5 1/4 braccias, changes, and then follows the ribs.

6. The first and second rings are 2 braccias high; but the first ring is further strengthened below by long stones as headers, so that both domes rest upon these stones.

7. At the height of every 12 braccias between the domes are small tunnel vaults between the ribs, forming a passage to the domes, and below the small arches between the ribs are large oaken tie-beams, fastened to the ribs by iron cramps.

8. The ribs are built of stone with heavy stone supports, indeed the exteriors of the domes contain strong stones, that are fastened to the ribs up to the height of 24 braccias, and

then above, they will be built of soft or spongy stone, of course taking into consideration the purpose for which it to be used, but of a lighter material than hard stone.

9. A passage might be made outside above the 8 round wi ows with a pierced parapet 2 braccias high; or indeed, two passages, one above the other above a well ornamented corn the upper passage being left plain.

10. The water from the dome falls into a marble gutter braccia wide, and it may then run into certain spouts of s strong stone set beneath the gutter.

11. There may be made 8 marble heads on the angles on t exterior surface of the dome, as large as may be required one braccia high above the dome, with caps, and measuing 2 braccias high, and one braccia from the top to the gutter every part, being built in the form of a pyramid from base top.

12. Build the domes in the manner described above with other covering and with the maximum size of 30 braccias; b with internal connecting bridges in whatever way will be a vised and thought best by the masters, who are to build th it may then be made over 30 braccias if desired, as experi in building will show what is the best plan to follow."

Cracks have likewise appeared here in the surfaces of th dome with time, from which it is attempted to prove the fa of different earthquakes in Florence.

50. Dome of S. Peter's in Rome.

Peculiarities here appear in the conception, and especia in the details of construction, which moreover did not spr at a bound from the brain of Brunellesco in complete form, as the execution in comparison with the specification show and exist without precedent, so that we behold in the seco great structure, the dome of S. Peter's at Rome, only an a vance in the form, but not in technical respects, in spite its appearance more than a century later.

The dome rises above an octagonal substructure with unec sides, by which arrangement a portion of the pendentives a still supported by ascending masonry; the latter extends b ween four mighty piers, which are connected by round arche

72 and already prepare for the reception of the circular drum, on which rests the likewise circular dome (Fig. 58). The arches are there entirely open and are not filled with arcades and walls on two sides, as in S. Sophia; the pendentives form true spherical triangles. As in the Church of S. Sophia in Constantinople, the dome is divided into supporting ribs and compartments extending between them, in accordance with true Roman principles; but according to the precedent in Florence, it is built with two shells.

Originally designed of true hemispherical form internally, this shape was abandoned in the execution, and for structural reasons, it was made of pointed arched form like the exterior, the two shells showing courses not extending parallel to each other, for the outer one is made steeper than the other. The statical seasons for the form of the dome were by the arrangement of the lantern and the loading of the apex the same as in Florence. In the large wooden model by Michelangelo, the different vaults are given above each other; the innermost was suppressed in the execution(See Fig. 69 and the detailed statement concering the history and mode of execution in the author's essay, mentioned in Note 31, p.65).

The supporting ribs extend through both shells and project from them both externally and internally' they assume the load of the masonry of the dome extending between them (Fig. 67 e), executed in herring-bone style. Michelangelo even provided in his model both iron anchors in the drum and also strong iron rings in the dome itself.[40] The rings were increased at a later time, since the original ones were torn apart, so that now 5 iron bands may be counted in all, which were applied in 1743, 1744, and 1748. The external surface of the protecting dome is covered with lead; precious mosaics adorn the internal surface of the inner dome. Both domes are built as one from the springing to one-third their height, and they there separate into an external thinner and an internal thicker sh shell.

Note 40. Compare the Author's Essay already mentioned, (Plate 4), where thé cracks after the execution are also indicated.

51. S. Maria di Carignano in Genoa.

s work of the great Florentine has been imitated on a
er scale in the Church of S. Maria di Carignano in Genoa
an Galeasso Alessi from Perugia, where the hemispherical
nal shell was retained, while the protecting dome was
hat stilted. Both domes begin to separate at the spring-
nd each is separately built of brickwork: they support
a large opening at the apex a correspondingly large lan-

mode of their execution is different. The internal one
Roman dome with coffers, while the external one is built
ely without ribs and without connection with the former,
s one regards as stiffening the two shells, the vaulted
ed helical staircase, that ascends between the two shells
e lantern and then descends to the main internal cornice.
are Fig. 70 and the larger publication of the construct-
f this dome in the journal mentioned below)[41] Connecting
s for resisting stresses are irregularly arranged in the
between the two domes here and there: but nothing is to
en of any bonding with iron. There is to be mentioned
ving only an injurious effect, a great crack extending
the apex to one of the supporting piers. The external
cting dome is covered by semicircular slate slabs, the
nal dome with coffers being plastered and whitewashed.

e 41. *Zeit. f. Bauw. 1902. p. 162 to 172, pls. 5,6.*

52. S. Maria dell'Umilta in Pistoja.

urther example of a great cathedral dome like that of
nce is that of S. Maria dell'Umilta in Pistoja, begun
ttorio Vittoni and completed by Vasari. The hemispheri-
orm is here employed on the exterior and the interior;
ibs reappear at the eight angles; also horizontal arch-
occur in a somewhat stunted form, the apex loading of the
vaulting by a lantern is to be seen; the eight extern-
bs are composed of moulded ashlars, and the surfaces of
aulting are covered by flat red tiles, just as in Flor-

misfortune controlled this building, which the first
tect had to leave without a vault, and which Vasari,

"for the honor of God and for his own fame", actually supplied with the dome. The stone lantern is beautiful without question, very finely conceived in size and form, but is too heavy an apex loading for the form of the vault chosen, which exerted itself later in an injurious way, so that the city architect Lafri of Pistoja desired to have it taken down. But they were satisfied by surrounding it with iron bands, that are visibly arranged on the external surface of the dome in five series above each other, and with the exception of some cracks, it still stands today after the lapse of nearly 400 years, dominating the sky-line of the city. (Compare Fig. 71, and the Author's Essay mentioned in Note 41).

From this occurrence, men have desired to declare that the Renaissance masters were bad constructors. Then are the architects in other styles such likewise; for I know of no great or even smaller vaulted construction in architecture, uninjured by such defects. The mediaeval cathedrals in Italy, and those in Germany, from Basle to the lower Rhine, are not free from them. The reasons for their appearance may be determined but not always avoided, especially when one considers, that the vaults partly rest on masonry in mortar, and partly on monoliths or ashlar courses with few joints. De Saulcy quotes in his book an Arab proverb: "the arch never sleeps."

58. Development of the Pendentive.

Very peculiar are again the various ways of shaping and decorating the pendentive and the adjacent arches under such domical vaults, that rest on a drum or are set directly on the pendentives.

The motive of S. Peter's, changed to a small scale in a very charming manner, is found in Chapel Chigi in S. Maria del Popolo in Rome (Fig. 72), and in the same church is the simplest solution, where the spherical triangle is covered by slabs of colored marble (Fig. 73); another simple one is in the Chapel of P. Clemens in the Lateran, where stucco figures fill the pendentive (Fig. 74), and again two others, splendidly adapted to the conditions, in S. Maria Maggiore in Rome, with hermes figures supporting medallions, or with detached figures, that stand on the impost cornice before the

springing of the pendentive (Figs. 75, 76). And again a further solution is given in S. Maria del Popolo, where the dome over the intersection is octagonal in plan, and the pendentives are formed by corbelling and end horizontally at top(Fig. 77). Nowhere is this rich art embarrassed, and the novel and peculiar only so far appears, and where the structural idea is sound, there may the decoration be said to be equally so!

54. Cross Vaults.

In employing the cross vault, the Renaissance mostly takes up Roman vaults without ribs, especially preferring those in which the groins entirely disappear at the crown. With very few exceptions, it decidedly avoids the vault with projecting moulded ribs, keystones, and heavy bosses in the compartments, in order to execute their decoration with the greatest freedom possible.

Where the Renaissance employed the cross vault with ribs, its decoration was carried out in the same manner as in Gothic. Ornamental bands accompany its ribs, the triangular pendentives received medallions with figures, and the angles grotesque ornaments.

On cross vaults without ribs, stucco and painting occur as means of decoration, or they are combined. Charming works of this kind, -- with stucco and painting in the antique sense,-- are found in one of the side chapels of S. Maria sopra Minerva, as well as in the loggia of Palace Doria in Genoa, and as the finest examples of free ornamentation may be taken the ceilings in the form of cross vaults in Villa Madama near Rome, by Giovanni da Udine.

55. Cylindrical Vaults.

Cylindrical vaults in the antique manner and subdivided in all the forms peculiar to that period, with coffers or divided by beams, then covered with stucco and painting (Scala d' Oro in Palace Doge, portico of S. Peter's in Rome, etc.),
78 mostly with the addition of rich gilding. One of the most attractive decorations of this kind is executed on the cylindrical vault of the corridor joining the Sacristy and the Church S. Spirito in Florence (Fig. 78).

But the cylindrical vault with intersecting compartments

is that form of vault, which the Renaissance employed with es pecial preference. These compartments are sometimes arranged to make possible the introduction of light, at others to concentrate the thrust of the vault at certain points (S. Stefano in Venice, Fig. 79).

58. Oblong Cloister Vaults and Vaults with Horizontal Panels.

But the Renaissance chiefly used vaults with horizontal panels above them and with or without intersecting compartments, at large and small scales, in corridors (compare the loggias of the Vatican), vestibules (compare Genoese palaces), living apartments, halls, stairways, sacristies, refectories, etc., as the favorite motive of their forms of ceilings. The style here brings all its decorative expedients into free development, here were offered to the decorating master curved surfaces of vaults, slightly curved large ceiling panels, and vertical wall spaces, which he could cover with great compositions, medallions and grotesque ornaments; he could work there with stucco and color, giving rein to his very rich imagination. No other style in the world can exhibit greater magnificence and freer disposition of ornamentation, than the Renaissance has applied just here upon the peculiar basis created by itself.

The purely structural forms themselves have a graceful effe in the variety of their shapes and their intersections, and they were elevated to productions of the greatest splendor by the help of painting and small sculptures (Compare hall in Villa Farnesina in Rome, hall in Palace Doria at Genoa, ceiling of the Sistine Chapel, and above all, the precious Library in the Cathedral at Siena).

These forms of vaults could even be employed with a moderat extent of the height of the apartments; they rise as if soaring over them; a definite height of the springing lines was not fixed, and the section of the vault could be made with an possible curvature.

These vaults were mostly constructed of tiles laid flatwise and depended on good mortar, good tiles, and the skill of the

79 workmen. Therefore, the cells in the Monastery of S. Marco

in Florence are covered by cylindrical vaults of oval section, that for a span of 11.8 ft. have a uniform thickness of the vault of only 2 3/8 ins.

For greater spans, solid construction was mostly abandoned; then recourse was had to the expedient of sham vaults of wood, already mentioned by Vitruvius, the vaults being constructed of timber arches and these being furnished with a covering of boards or laths and a coat of plastering on reeds.

57. Annular Vaults.

Horizontal and inclined annular vaults were likewise included in the circle of their works, especially on the under surfaces of the great winding stairways of various palaces, for example, the Palace in Caprarola, Palace Barberini and Palace Vatican in Rome.

As an example of a small spiral stairway, vaulted above and beneath, may be mentioned that in the double dome of S. Maria da Carignano, where the ascending annular vault is executed in a very appropriate way.

58. Vaults of Slabs of Stone.

A peculiar vault is composed of stone slabs resting on transverse arches, which extended from arch to arch and are joined by rebates into the archel form.

Roof slabs over vaults are well known,-- we find them on the Cathedral in Milan, on the Loggia dei Lanzi in Florence, and on this side of the Alps on the Cathedrals of Strasburg and Freiburg, -- but they there lie overlapping like great roof tiles, forming an inclined plane, and they do not have the shapes of voussoirs, designed to form the ceiling and roof.

The only construction of this kind in a noble style known to me was executed on the Cathedral in Sebenico by Master Giorgio Orsini. On a system of semicircular transverse arches 2.46 ft. wide and 1.94 ft. deep lie stone slabs 9.5 to 12.8 ft. long, according to the dimensions of the bay, coursed in semicircular form and joined together, externally stepped, internally showing a smooth surface, and thus forming both the ceiling and roof. The slabs have on an average a width of 2.46 ft. and vary in the different bays from 14 to 15 in number, while the transverse arches are composed of 13

voussoirs. The latter have internally sections like an architrave with bands and small rounds, but externally have rounds with deep recesses between them, animated by deep incisions (Fig. 67 f), concerning which it must be stated, that on account of the good condition of the roof, the bearing of the slabs on the arches and their joinings could not be determined by me; the detail section given in Fig. 67 f is problematical, but must correspond to the reality.

The side thrust of the transverse arches of the vault over the central aisle is directly resisted by iron rods, without which and with the thin external walls, the construction would certainly not have been durable.

The side aisles are similarly constructed, over which the vaults assume the form of a depressed quadrant. Five rebated slabs rest on circular transverse arches and here form the ceiling and roof. The steeply aspiring octagonal dome over the intersection is likewise constructed of slabs and ribs in the finest way.

A white local limestone serves as the building material, which today gleams white in the sunshine and only appears blackened in the interior by candle smoke and incense fumes.

80 As precedents in antiquity were only the vaulted buildings of central Syria of the period of Marcus Aurelius, and especially the ceiling of stone slabs over the Pretorium in Musmiye, that alone is practically covered in accordance with the construction in Sebenico. In the journal mentioned below[42], I first took position in the matter on the suggestion of the learned editor Graus, an enthusiast for the art of the Renaissance. A study on the spot has fortified my opinion of the building.

Note 42. Der Kirchenschmuck. Journal of the Christian Art-Union of the Diocese of Seccau. 17 th Jahr. (1886). Nos. 1-5.

Note 43. Compare further. De Vogue. Syrie Centrale etc. Vol. 1, pl. 7. Paris. 1865 - 77.

But whether Master Giorgio had any knowledge of the Syrian buildings must be very doubtful; I do not believe in any connection of the structures in the Hauran with those in Dalmatia, nor in the derivation of one from the other. The natural con-

conditions of both countries (rich in stone and poor i
may have led to allied results; both methods may theref
regarded as original, and we know of the Renaissance ma
that he understood how to also express a mode of constr
in good form and with spirit in the facade (Further, se
D, Chapter 30).

59. Vaulted Wooden Roofs and Wooden Ceilings.

The form of the roof and internal ceiling of this sto
matian church ceiling were also icitated in the Capital
Republic of Venice, not constructed in like monumental
but in wood, evidence of which is given by S. Maria dei
li, the little charming jewel of the Early Renaissance.
81 internal depressed cylindrical vault with coffers consi
a timber construction, that is partly suspended from th
work of a roof truss built above it in the form of a sh
hull(Fig. 80). Ceiling and roof are thereby separated
each other by an accessible space.

60. Buttresses.

When the direct resistance of the horizontal thrust
vault by an iron tie-rod was impossible, there were arr
on the external walls at the points where supporting or
verse arches rested on them, either special forms in th
plan or projections of masonry, buttresses projecting i
ally or externally, thereby using the same means as the
antique and the middle ages. Only that they were made
ject greatly in the North, usually far beyond any neces
(Compare Cologne Cathedral and other monuments).

This unnecessary size was dropped in the South as un
fiable. The buttress with offsets was not adopted on
82 thedral of Milan, and just as little on the Certosa nea
ia and on the Cathedral in Como. As the structure last
shows, they form during the Renaissance uniformly proje
wall-masses of moderate thickness, that rise verticall
a boldly projecting and moulded base to the main cornic
is broken around the buttress. The angles are marked
low mouldings and the height is divided by transverse
the same section.

Following mediaeval precedents, figures and consoles

the front surface for the lower third of the height, recalling the canopied figures of the preceding art period, but with/the difference, that the sculptor again freely expresses himself and is not limited to the production of esthetic figures placed in shrines.

A spire on this projection indicated in the middle ages the "dying-out of the masses, a deliverance from the forces striving upwards, pressing for development and equilibrium". The Renaissance transforms these for artistically sound reasons - into a quiet cap, that terminates the lower masses in the most beautiful manner. Airy and open canopy structures rise above the principal cornice on a solid and bold substructure; their small curved domes with consoles, balusters, and obelisks, give a quiet and effective upper ending in well-conceived and beautiful outlines.

As in Cairo, so was it carried out in like charming manner on the Certosa near Pavia, especially on the side facade towards the small cloister della Fontana.

The Early Renaissance developed in these caps the entire magic of its imagination, the entire wealth of its treasury of form, its feeling for beautiful outlines, with architectural forms rising freely from the air.(Fig. 81). No terminal like another, yet they remain in harmony with each other.

61. Water Spouts.

The collection of rain water and its discharge from certain parts of the building busied antique architecture as well as that of the middle ages. We find terra cotta and marble gutters on antique temples, public and private buildings, and gutters cut in stone on mediaeval cathedrals.

Simple channels, spouts in trumpet form, lions' heads or the heads of other animals (boar, panther) with open mouths, and masks, throw the water from the roofs of antique buildings far from the structure. On mediaeval monuments, these are fanciful figures and unclean beasts, through which the water is expelled, not to the advantage of the building, which frequently suffers more from these streams of water, than if rain water were permitted to take its free and natural course. (The roof gutters have meaning and value only in connection

with down spouts leading to the ground). The Renaissance made the same imperfection its own; but it shaped its water spouts incomparably nobler and more beautiful. Strange caricatures and comical, sometimes indecent figures, did not ornament its cornices; it inherited beautiful sculptured decorations for them; nude female and male figures bearing amphores on their shoulders, from which the water poured. On the Cathedral in Cano, they belong to the most attractive ornaments of the buttresses, where they are placed between the architrave and cornice, leaning closely against the wall in firm pose (Fig. 82). Just as finely wrought examples are found on the Palace del Commune in Brescia, above the main cornice and before the parapet of the attic. Somewhat ruder are those on the Church of
83 S. Mark in Venice, between the oval shaped gables of the main
84 facade. Everywhere are grace and elegance in detail, beautifully shaped human bodies instead of mediaeval abortions! In cases, where they could or wished to not go so far, men resorted again to antique spouts for water in form of lions' heads.

62. Coursing of Voussoirs; Bond Stones; Stonecutting.

From antique and mediaeval methods of coursing stones and bricks in vaults, men did not depart during the Renaissance on the whole, in cylindrical, cross, niche, domical, and vaults with intersecting compartments, the voussoirs were always so set, that the bed joints extended from the centre or the middle line of the vault. In front arches, door and window arches, notched ashlars were also[44] used, which appeared in Roman buildings of the late period, and especially when the voussoirs were required to join with the adjacent coursed ashlars of the facade in a certain way. For vertical arches, simple through radial joints were preferred, and the indented voussoirs of late Roman art were rejected (Orange, Spalato, Syracuse), which in the epoch of Theodoric led to wonderful things and falsified the stonecutting in vaults (Compare the jointing on the Tomb of Theodoric in Ravenna). Peculiar coursing in cross vaults with the use of stone slabs between ribs is found in the side aisles of the Cathedral of Sebenico.

Note 41. See Part II, Vol. 2, p. 154, of this Handbook.
For round-arched openings, doubly indented ashlars reappear

in the 17 th century on this side of the Alps on German Renaissance buildings (like Palace Stetten, near Lorrach, etc.), as well as on mediaeval structures (for example on the choir arches in the Castle Chapel at Krautheim in Baden, where the keystone has two semicircular projections and must have been slid into place from the front). Did these buildings in Baden, 1000 years later, find suggestions for such jointing indeed in Ravenna?

But in brick vaults, it is known that a departure was made from the usual position of the voussoirs, as the great constructions of S. Peter's and of S. Maria dei Fiore have shown, where herring-bone coursing of the voussoirs was adopted, and dovetail vaulting was brought into use in other places for cross and cylindrical vaults. On the vaults of the beautiful double aisles of a Loggia near Gate Porta Pusteria in Mantua (Fig. 83), I could determine this in the year 1871, where a part of the plastering had fallen off from the surface of the vault, and in 1882 on the cylindrical vaults with intersecting compartments in the Refectory of S. Maria delle Grazie in Milan, where repairs were then being made on the ceiling.

85 Chapter 8. Roof Construction.

63. Roof Trusses.

The flat roof was never abandoned in Italy at any time. What the ancients had devised continued in honor from the early to the late middle ages and even during the entire period of the Renaissance down to our time. The German masters of Gothic had to take it into account on Italian soil; the steep roof of the North was refused as something opposed to the purposes. Under such conditions, it cannot be surprising, that the conservative South presents nothing new in this field of construction. No architect progressed beyond the antique roof with rafters, and the different style periods only make this difference, that some leave visible the construction of the framework of the roofs within their porticos and churches, while others conceal it from the observer by a horizontal inserted coffered ceilings.

Greeks and Romans would indeed have scarcely left visible the construction of the roof on a monumental building; the

and ornamental painting, and this is said with reference to the ceilings in Palace Doge in Venice, -- these ceilings belong with the most splendid created by the Renaissance, indeed with whatever in this kind, that has been done in the world generally. The highest total of ability here appears, and what magnificence and feeling for beauty are apparent! Likewise in this respect, the Renaissance is new and creates without precedent!

These wooden constructions are all built of accurately hewn and framed timbers. The wealthy commercial city of Genoa made an exception from the ancient rule in like structures and returned to a tolerably primitive mode of construction with the highest elegance of execution in other materials, which we elsewhere find only in well-wooded mountainous regions. Instead of hewn timbers, round timbers with the bark removed occur, just as supplied by the forest, though the the ancient roof with rafters is still retained.

Gauthier first described these structures in his work mentioned below,[45] and I reproduce in Fig. 87 one of the most interesting examples; the construction of the ceiling and roof of the Bourse built by Alessi, which I verified on the building, and whose detailed dimensions I measured again in 1888.

Note 45. Gauthier. Les plus beaux Edifices de la Ville de Genes. Paris. 1830.

Where building timber was procured with difficulty, the Renaissance retained the ancient methods; instead of dressed tie-beams, masonry arches received the inclined rafters or the purlins, the timbers being chiefly of small dimensions with horizontal widths depending on the size of the bricks, so that, for example, those in the roof-trusses of the roofs over the portico of S. Lorenzo in Florence and in the Badia near Fiesole are only 13 3/4 to 15 ins.

64. Fire-proof Construction of Ceilings and Roofs.

A peculiar massive construction is shown by the ceiling and roof over the great hall of the Palace Ducal in Genoa (Fig. 88), measuring 118 x 53.5 ft., the former being treated as a segmental vault, the latter like a ship's hull, which we have already learned to recognize in Venice. The Palace was orig-

coffered ceiling mentioned always formed the covering of the room. The same must also have been the case with Early Christian buildings, and it was omitted only where means were limited.

The masters in the middle ages were permeated by the same views, who constructed the ceilings of S. Zeno and S. Fermo in Verona, of S. Stefano in Venice, etc. They did not desire the antique method of covering the interior, nor wished the wooden rafters of the roof to not be visible (Fig. 84) and thus offered something new. The Protorenaissance could only manage the ancient roof truss; but as they left it visible, they also made it an object of artistic treatment; they ornamented and painted the woodwork and added sculptures (consoles and decorative bands) to it, as the beautiful visible roof trusses of S. Miniato near Florence with its painting (certainly restored) shows.

But the awakened Renaissance rejected these two gifts; it either left the roof truss visible, and this only in a few cases, where simple buildings were covered (S. Francesco al Monte, --- "la bella Villanella of Cronaca, 1504), or it already in the Early period decidedly returned to the simple coffered ceiling, whose finest example in varied coloring is indeed to be seen in S. Marco in Rome and in a design in White and gold in the central aisle of S. Maria Maggiore in Rome. But in this a carpenter's framework of heavy timbers was not strenuously retained in the sense of the Greek stone-beam ceiling, the continuous tie timbers of the double tie-beams were rather employed as structural beams, between them being inserted coffers of light joiner's work in boards. To this mode of construction was added the execution of completely independent coffered designs (Figs. 85, 86), as they finally appeared on the vaults of the Roman Baths and on the Basilica of Maxentius after the rejection of each form derived from the construction. The combination of small and large coffers of every shape, -- not excluding the circular form, -- frequently with rich carved work, as on the ceiling of the Badia in Florence among others, was the final result. In connection with gilding and color and with the addition of figure

almost entirely burned down in 1777, when the Genoese architect Simone Cantone was in 1778 entrusted with the rebuilding under the condition, that no wood should be used in the roof. He solved the problem in an interesting way. Fifteen great brick arches of about 2.46 ft. depth were placed at regular distances above the segmental vault; these arches are connected at their crowns by brick arches, on which beside every other arch are fastened iron tie-rods extending down to the ceiling vault, which they aid in supporting. The arches are about 4.60 ft. apart and they are further joined at the crown by three large slate slabs, and further in four arches directly over the segmental vault, through tie-rods are set. Against the great cylindrical vault built in this way, two hip roofs then abut, whose ridges are likewise built as brick arches, on which rest smaller arches like hip rafters.

The two arches lying next the ridge are joined by a S. Andrew's cross of masonry, while the succeeding ones are close together and their thrust is resisted by stone beams (slate slabs). Slate slabs are then laid to overlap on the exterior, extending from arch to arch, just as in Sebenico, and these support a layer of mortar in which are embedded the smaller roofing slates, like the method on the roofs of S. Maria da Carignano.

Chapter 9. Stairs and Stairways.

65. Stairs.

With the changed manner of living, arrangements also became necessary in palaces and houses, unknown to the earlier period. In antiquity, living on the ground level was esteemed as the only distinguished one, suitable for the nobles and the wealthy; dwelling in rented houses of several stories in imperial Rome was left to "misera plebs contribuens", who could only gain access to their stories by straight and narrow wooden stairways.

In mediaeval buildings in several stories with bays and windows on the street facade, the staircase already plays a more prominent part; distinguished occupants of a separate house withdrew to a higher story and left the rooms in the ground

ground story to servants, to shop-keepers and mechanics in cities; the wealthy citizens did likewise.

Consequently the wooden or stone winding staircase, occupying less floor area, competed with the straight one, concerning which it must be said, that ancient Rome was acquainted with it, to judge from the still existing spiral staircases in the Columns of Trajan and of Marcus Aurelius. Masonry winding staircases in circular rooms are also partially preserved in the imperial Palaces at Treves and at Arles. Winding stairways characterized the entire period of architecture on this side the Alps; they could easily be arranged in any part of a building and for each story, which was indeed a reason for their being generally preferred.

In the Renaissance period, living in the upper story became a requirement for prominent persons; the "piano nobile" or "piano reale" in palaces is always the first upper story in Italy (second story in U.S.). If the usual unrest and party fights in the cities made this change necessary for reasons of safety, it was further adopted as being a pleasure, to be able to view the life and action in the streets from a secure point of view.

What the antique house forbade was permitted by the mediaeval, and still more by those of the Renaissance.

66. Stairways.

The distinguished residence in the upper story required an improved access thereto, and thus the winding staircases were replaced by the larger stairways in two flights with a landing between them, straight and easily ascended; the proper stairway of the nobler style was adopted in house architecture, and thus a new impulse in the artistic treatment of the house was introduced for architects. And this is again a merit of the Renaissance, and it again created in this a new idea without precedent. But it retained herein for service and traffic the winding stairways with and without steps, the latter passable by mules, or they gave to these greater dimensions, a monumental form and richer ornamentation, like the winding stairway in the oval room in Palace Vatican by Bramante, that in the Villa Papa Giulio, in Palace Borghese, in

Palace Barbarini in Rome, among others.

The straight mediaeval stairways with landings in public buildings and palaces are mostly open, in enclosed uncovered coutts (Bargello in Florence, Palace della Ragione in Verona); those of the Early Renaissance are chiefly within the porticos surrounding the courts, but half protected against wind and weather (Palace Arcivescovile and Palace Gondi in Florence). In Tuscany, the flights of steps are generally covered by cylindrical vaults, while in Genoa, stairways with columns and cross vaults predominate[46]

Note 46. A tolerably comprehensive collection of designs for stairways, although in the form of fugitive sketches, yet characteristic, well chosen and drawn, is to be found in Mylius, C.J. Treppen-, Vestibul- und Hof-Anlagen aus Italien. Leipzig. 1867.

The first entirely convenient and broad staircase is that designed and built by the younger Antonio da Sangallo in Palace Farnese in Rome, compared with which all earlier examples seem steep. It is very easy to ascend and is best suited to the stride of a man of average size.

Leon Battista Alberti requires in Book 1, Chap. 13, of his Treatise on Architecture, an uneven number of steps and of landings (pianerottoli) in a flight, the rise of the step to be not over 1/4 or less than 1/6 bracchia, the treat not less than 1 1/2 ft. nor over one bracchia. In his famous Farnese stairway, Sangallo assumes a rise of 5 3/4 ins. for a treat of 21 1/8 ins., and he gives the treads an inclination of 11/16 in. forwards, the treads being finished with roll-moulding, fillet and cove.

After this construction, no more defective stairways were built, so long as sufficient means were at command. But the stairways and the number of steps increased in time in the larger public and private buildings in the period after the High Renaissance, and especially in the Barocco period, to become architectural works, that were no longer in proportion to the useful apartments in the building, but always formed the most magnificent portion thereof, adorned with costly materials, noble sculptures and rich paintings. They became

art works of the highest rank in themselves, whether executed at a large scale or in more limited proportions. They are the pride of the Barocco palaces with their great width, low steps, convenient landings and stone balustrades.

In costliness and magnificent coloring of the marble, the stairway of the Palace in Caserta stands alone; in grandeur of design with good proportions, the palm is due to that of the Brera in Milan, and to those of nearly all Genoese palaces, particularly that of the University there.

The Scala Regia in the Vatican should be included with these in spite of the simplicity of its design.

Marble, travertine, and other limestones, sandstones, slate, and bricks, were employed in the construction of stairways; richly carved wooden stairs in the style of the German and English Renaissance are unknown to me in Italy. Those of stone are built both self-supporting as well as extending between two solid walls or supported by vaults.

92. Chapter 10. Orders of Columns and other Architectural Details.

"Whoever throws off the restraint of the columnar orders must create for himself another canon for them, or directly disown the characteristic and subjective expression in architecture, to adjudge to them only the right of a general typical meaning. Whoever knows no restraint, his art falls into formless and meaningless arbitrariness. The presumptive inventor of a new canon has in the best case only deceived himself and not changed the nature of the old. Yet had he succeeded in the latter, so would he have thereby won fame for the exclusive possession of his art; for no one except him would so quickly understand it. Herein Architecture shows itself just as inflexibly conservative as music."

Semper. Der Styl. Vol. 2. p.372(1).

67. Survey.

The circle of architectural forms within which the Renaissance in Italy moved, the architectural language in which it speaks to us, are not so closely limited as many dilitantes and writers on art would gladly have themselves and others

believe, and in apology for them it may also be said, that the expression of form is a "borrowed" one and not so important. Everything is borrowed at last, even if this be from highly esteemed mother nature; one stands on the shoulders of another in art and in methods; but the most modern man speaks of the "trodden paths" of the Renaissance, and it may well be said, that only the fewest of these have become common roads, and others cannot be traveled by all at present. Paths followed by an Alberti, Brunellesco, Lionardo, or Michelangelo, artists in whom we honor the highest flower of the intellect and of creative power given to us by a good Providence, are not to be mistreated, frequently against better knowledge, by artist cliques and their poets, and likewise not by those, who regard art as fashion and a cow to be milked, in order to draw attention. And if a later time asks for the names of such heaven-storming heroes, who wished to patch up the gigantic men of the Cinquecento somewhat, one may say like "Rameau's nephew";-- "Hem! Grimm! Grimm! Who was Grimm? Ah! He that was once abused by Rousseau??"[47]

Note 47. Compare Brachvogel, A.E. Narciss. A Tragedy. 7 th edition. p. 15. Jena.

Whoever can and will see and understand will soon convince himself, that the masters of the Renaissance were not in their works thoughtless repeaters of the antique in any certain period, nor even in details, that already in the beginning, they did not understand how to estimate their value. Also the detail forms of their buildings are not once entirely antique; many of them are permeated by the northern spirit of the Gothic. For example, the window sill courses of the Tuscan palaces are anything else than severely antique in section; even the details of the intellectual Alberti, rich in knowledge, on his Palace Rucellai are not so. The former still shows on the frieze the mediaeval dentils, on the latter, neither the capitals nor the bases of the pilasters on the ground story are of purely Roman form. Likewise the arrangement of the principal entablature on Palace Strozzi is not strictly Roman, since the architrave is wanting below the frieze and shrinks to an astragal, and more of the same.

But these were not accidental occurrences; they were possible only for the reason of a preceding thorough study of the antique; without which they would not have been in condition
93 to create anything new, that was again only possible, when it was sought to base both the forms and the structural nature of Roman architecture, with its ground-works, on the domain of vaulted construction. The later must especially attract, as the great work of Brunellesco shows, and Formigini would never have attained to such free conceptions and novel treatment of forms in his magnificent capitals in Bologna, had thorough studies of the antique not preceded them.

68. Orders of Columns.

This study is attested by the measured drawings of ancient monuments preserved to us, and by the system, which they based upon these. All masters, from the co-founder of the Renaissance in Italy, the learned and highly cultured architect Alberti, to the theorists Vignola, Scamozzi, etc., devoted themselves to the so-called columnar orders and fixed their canon. Alberti busied himself with them in his book "dell Architettura", Book VI, Chap. 13, and Book VIII, Chap. 9, et seq., and there expresses himself thoroughly concerning the swelling of the shafts of the columns,[48] for the execution of which he gives the rule (fig. 49). He expresses himself in a more comprehensive manner on the orders[49] in general in his Essay on the Five Orders of Columns.

Note 48. "Chiamesi ventre, e pare che in quell luogo la colonna gonfi alquanto".

Note 49. Leone Battista Alberti's Kleinere Kunsthistorische Schriften, published in the original text, translated into German, explained, and supplemented with notes by H. Janitschek. Vienna. 1877.

The annotations of Alberti follow verbatim in Janitschek's excellent translation, to them being added facsimiles of the drawings of Vignola, whose originals I once purchased in Rome from a dealer. With reference to the sheet with the principal cornice, where among other things it is said in the accompanying text (Fig. 90; "Con tutto che sia di mia intentione", --- I hold the pamphlet of 12 pages 17 1/9 x 10 5/9 ins. to be

genuine, and therefore the reproduction of the drawings concerning us here, to be of value.

"The Five Orders of columns.

a. The Tuscan order (Fig. 91). Although Vitruvius treats of the Tuscan order of columns in the fourth Book after all the others, yet it appears to me in place, when all four orders are allied in architecture, to raise from neglect and to first treat of that one, which is the strongest and possesses the greatest supporting strength.

1. The shaft of the Column. -- The Tuscan column must have six diameters, which diameter is always that of the lower end of the shaft.

2. The base is made one-third a diameter. This (height) is halved; one-half falls to the plinth; the other half is again divided into 3 parts; two-thirds of it falls to the lower torus (bolster), the remainder to the band (apophyge) at the lower end of the shaft.

3. The Capital. -- The height of the capital is to be made equal to the half diameter of the lower end of the shaft; the projection equals the lower diameter of the column. The entire height of the capital is divided into 3 parts; one part is given to the abacus, another being assigned to the echinus with the fillet, wherein the fillet is made one-sixth of this part, - the remainder falling to the necking: the astragal with the fillet has half the height of the necking; divided into three parts, two fall to the astragal and the other to the fillet. The upper end of the shaft is to be divided into 6 parts; if one part be taken away on both right and left, the column will then be diminished in the manner appropriate to it.

4. The Architrave. -- The height of the architrave equals the diameter of the upper end of the shaft; the taenia occupies the sixth part of the architrave.

5. The Frieze is of the same height as the architrave.

6. The Cornice is likewise divided into 4 parts: one part falls to the echinus (bed moulding), another to the facia, the two remaining parts to the corona (?); its projection equals its height.

7. The projection of the Base is determined by circumscribing a square about the lower end of the shaft, then drawing a circle through the corners of the same, which gives the projection of the base.

8. The Pedestal equals in height the projection of the base; to it is added a band above and beneath, which will have suitable proportions, if they have the fourth part of the given height.

b. The Doric Order. (Figs. 92, 93). -- The Doric order is to be treated as follows. The column is first divided into 14 modules; one module gives the base; another falls to its capital.

1. The Base is divided into 3 parts; one part falls to the plinth; the two other parts are subdivided into 4 parts, one of these is given to the upper torus, the three remaining parts are halved, one-half is assigned to the scotia with its fillets (quadra), the other half gives the lower torus. -- Its projection will be the same as in the Tuscan order.

2. The Capital. -- The height of the capital is divided by three; one part gives the abacus with the cyma, when the cyma should have one-third the height of the abacus; the second part is intended for the echinus and the rings, two-thirds of it falling to the echinus and the other third to the rings, of which there are three, entirely equal; the last third of the capital will be the necking. The astragal with the fillet will have one-twelfth the diameter of the column, the latter being two modules. The moulding (astragal) is subdivided in 3 parts; two-thirds fall to the astragal, the rest to the fillet. The projection will be the same as the diameter of the shaft at the lower end.

3. The Diminution of the column. -- The column must diminish by one-sixth, thus one-twelfth in the outline on each side; the same method is employed for this as in the Tuscan order.

4. The Architrave. -- Above the columns, the architrave is
100 made one module in height, the taenia of the same will have the sixth part of a module, the drops with their regula will have one-fourth the architrave. If the height of the drops

with the regula be divided into 4 parts, 3 parts fall to the drops and one to the regula; care should be taken that 6 drops are required. The triglyphs are placed above the architrave; they have a height of 1 1/2 modules; between each two triglyphs is found a space equal to the height of the triglyphs; in this space, which is termed metope, heads of oxen and rosettes are sculptured. The cap of the triglyph is the sixth part of a module.

5. The Cornice. -- Above the triglyph is placed the corniee, which has a height of one module, in which height is included also the cap of the triglyph. The remainder above this cap is divided into two parts; the one part falls to the cyma with its fillet, the other part to the facia with the lower moulding. The said lower moulding will have one-third of the cyma and of the corona. The projection equals the height of the cornice and by so much the more, as the upper cyma projects beyond the facia.

6. The Pedestal. -- The pedestal is made as wide as the base and 1 1/2 times as high as it is wide, exclusive of the upper and lower mouldings (cap and base). The said stylobate (pedestal) is to be divided into 5 parts, and the cap and base are each to be made equal to one of the said parts. The cap is divided into 4 parts; two of these parts serve for the cyma, another part for its moulding, and the fourth part for the astragal with its fillet. The base is divided into 3 parts: the one-third falls to the upper torus with the fillet, the two other parts to the lower torus'. The projection will be as great as the height of the cymatium. The plinth beneath the pedestal is not included therein, but it devolves upon the preference of the architect."

(Book VIII, Chap. 9 of the Alberti bears the title:-- Del Capitello Borico, Ionico, 9orinthico e Toscano. On plate 25 of the edition by Cosimo Bartoli (Bologna, 17[illegible]), the Doric capital is given in two different forms, that differs essentially from the conception of Vignola, for they show certain Roman examples. It is especially drawn with much less projection than in the corresponding plates by Vignola.)

" c. The Ionic Order. (Figs. 94, 95).

1. The Shaft of the column. -- The shaft of the Ionic column must have 8 lower diameters.

2. The Base will be as high as is the case in the Doric order. To the plinth falls one-third (this height), the remainder is subdivided into 7 parts; with three of thes is made the upper torus, with the remainder the scotia with its astragals and fillets. The projection will be as for the Tuscan (base). The shaft is diminished as in the Doric order.

3. The Capital is made one-third the lower diameter of the shaft in height, but the volutes may hang down as much as amounts to half the diameter.

4. The Architrave. -- The height of the architrave has to be one-twelfth the height of the column, one-sixth of the said height falls to the cymatium. The remainder is subdivided into 12 parts; 3 of these parts fall to the first fascia, 4 parts to the second, and 5 parts to the third.

5. The Frieze. -- If the frieze be covered by sculptures, then make it about one-fourth higher than the architrave; if the sculptures be omitted, then make it about one-fourth lower than the architrave.

6. The Cornice. -- Above the frieze is made the cyma, and its height will be one-sixth of the height of the frieze; above the cyma are the dentils, just as high as the middle fascia of the architrave; above the dentils is found the cyma with its fillets of equal height. The projection of the entire cornice will equal its height.

7. The Pedestal. -- The height of the pedestal is made equal to the distance from the bottom of the base to the beginning of the diminution of the column. --- The said pedestal is divided into 8 parts: one of these falls to the base and another to the cap.

8. The Flutes. -- If the columns have flutes (striae), it will have them to the number of 24, and the flute is thrice as wide as the fillet.

9. The Volute, with the cyma is divided into 9 1/2 parts: 1 1/2 parts fall to the cyma, and the volute is made of the 8 remaining parts. The eye of the volute is placed at the middle of this height (thus at the 4 th division), and when a

circle is drawn to the extreme points above and below, the projection of the said volutes is obtained.

The Ionic capital of Alberti substantially coincides with that of Vignola, excepting that the former has a higher abacus; the spiral about the eye of the volute is likewise richer by one turn. Vignola further gives a construction of the volute, which we add in Fig. 95.

d. The Corinthian Order (Fig. 96).

1. The Shaft of the Column. -- The Corinthian column is made 9 diameters high; one of these diameters falls to the capital.

2. The Base is made half a diameter; the remainder falls to the shaft, as stated for the Ionic order. The plinth of the base is made the fourth part of the height of the said base; the remainder is (again) subdivided into 4 parts; one of these serves for the lower torus, the three remaining parts are divided anew in the same manner, and with these are made the two scotias and the astragals, as stated in the Ionic order.

3. The Capital is made in the following manner. The abacus will have the sixth part of the height of the same; the cyma has one-third of the height of the abacus. The moulding of the bell amounts to one-ninth of the remainder of the height of the capital. The bell is divided into 3 parts; two of these will serve for the foliage, the third for the volutes. The projection of the abacus must be so great as to stand vertically above the plinth of the base. The upper astragal with its fillet will be as large as the projection of the column (88).

4. The Architrave will be like the Ionic, excepting the astragals or beads, which occupy one-eighth the respective fascias.

5. The Frieze will be treated as in the Ionic order; but it will lack sculptures, if it be not somewhat higher.

6. The Cornice will be similar to that of the Ionic, exclusive of the cymatium, and it will indeed be so much higher (like the Ionic cornice) by the height of the cymatium, for which the size of the middle fascia is required.

7. The Pedestal is just as high as the distance from the beginning of the base of the column to the end of the swelling of the same, as this was arranged for the Ionic order.

The capital of Alberti entirely coincides with that of Vignola, but the latter also furnishes a construction of it here. (Fig. 97).

e. The Roman Order (Fig. 98).

1. Shaft and Base. -- The Roman order was put together and arranged by the ancient Romans. Since they desired to design a column, that should be more slender than the Corinthianl
102 they made the column 10 diameters high, including the capital
103 and base. The base may be made equal to the Ionic or Corinth-
104 105 ian base, at the pleasure of the architect.
106 2. The Capital is subdivided in the following manner. Its abacus will be like that of the Corinthian order, the volutes are equal to the Ionic; the foliage is like that of the Corinthian, and the columns diminish like those of the other order.

3. The Architrave will be as high as the lower diameter of the shaft; it is subdivided like the Ionic.

4. The Frieze. -- If medallions exist, then the frieze is made the same height as the architrave.

5. The Cornice. -- The cyma of the ponsoles has one-sixth part of the height of them: the width of the consoles is equal to the lower diameter of the column (?), i.e., when they are placed at a great height. if their distance from the eye be little, their width must be a fourth part less. And the distance between two consoles must at least equal 1 1/2 modules or even more, since they will then appear narrower to the eye. Its facia with the cymatium must be as high as the lower diameter of the shaft: if this height be divided into two equal parts, then one part falls to the facia and the other part to the cymatium: the facia will have a projection equal to the height of a console, and the cymatium one equal to its own height.

6. The Pedestal. -- The pedestal will be made as stated in detail for the Ionic and Corinthian orders, i.e., its height equal to the distance from the beginning of the base to the beginning of the diminution of the column."

The Composite of Alberti, which he terms "Latin" in his Minor Essays, likewise coincides with that of Vignola, who like-
107 wise gives the construction of the capital.(Fig. 99). A draw-

drawing of the Tuscan capital is reproduced from Vignola alone; it is wanting in Alberti.

In addition to these rigorous forms, antique art likewise already afforded fanciful shapes of the most varied kind, and even the so-called period of decadence here exhibits novel forms, frequently of the most original kind, like capitals in Eleusis, Rome, and other places.[50] However much the masters have measured, studied, and theoretically derived from the ancient monuments, they did not stop with this, and scarcely one reproduces without abridgement, what the antique had taught him. As persons of intellect and taste, they could give again what they had received, as it might be; what had been adopted was much rather worked over intellectually, and from it were derived those useful applications, that astonish us in their works.

Note 50. Compare Part II, Vol. p. 291 and Vol. 2 p. 245, 259 and 261, of this Handbook.

No attempts at a restoration of the ancient forms, rescued from the storms of time, meet us here; new life springs from that received, from the fountain of the ever beautiful, disturbed for a brief space of time.

69. Doric Capital.

The Romans already no longer knew how to commence with the strictly geometrically developed Doric capital of the Greeks: the Tuscans transformed it into a fresh work, the weakness in the transition from the square abacus to the circular echin-
102 us being better softened, than Roman art did by the addition of rosettes on the lower triangular angles of the abacus. From the echinus spring four scrolls, that bend down towards the lengthened necking of the capital and there expand into leaves. This further development of the Egyptian-Grecian endeavor to discover a beautiful transition from the square slab to the free pillar, that attracted the Romans, wherein the middle ages only succeeded in a rude way, the Renaissance brought to completion in a spirited manner (Fig. 100). This is a development and not a resuscitation of the dead!

70. Ionic Capital.

For the Ionic capital, the Greeks had already created enough alternative forms in the Attic-Ionic and Aeolic-Ionic

styles, to which Roman art could not add much, for it rather flattened this art form, and there is then the peculiar treatment, that we find in the crypt of the Cathedral of Fiesole, (Fig. 101), which the Renaissance has imitated naturally in the fore-court of the Maddalena de' Pazzi in Florence (Fig. 102) and which we may designate as an acquisition.

Rather might I approve the capitals of Palace Poggio at Cajano, not far from Florence, that permit the volutes to spring
109 from a bell covered by pipes, after the manner of the Corinthian capital. A solution by Vignola (Fig. 103) in which the volutes are curved outwards somewhat and their eyes are joined together by a laurel garland, whose very high abacus is partly concealed by a mask, and the Ionic capital of the columns in the cloister of S. Lorenzo in Florence (Fig. 85) with consoles attached to the wooden cap, exhibits a peculiar conception and a further development of the ancient motive.

The outward curling of the volutes, like shavings from a plane, according to the model of a capital from Pergamon (now in the Berlin Museum), also shown by the capitals of the German Renaissance, was not imitated in Italy during the good period.

71. Corinthian and Composite Capitals.

And now first appears the wealth of variations upon the theme of the ancient Egyptian bell or calyx capital, on which the peoples of all time have labored with more or less skill, and even also on its translation into the flat as a pilaster capital! The middle ages took up this antique motive just as zealously as the Renaissance; but the latter employed greater freedom, a greater variety of decorative expedients; and especially a far superior refinement in the treatment of details. Human figures move in the conventional or naturalistic foliage; with them alternate heads, animal forms and emblems; pleasure and pride, a gushing imagination, contend in the ornamentation of this form of capital, and the originality and mastership, the grace and the feeling for beauty of the Renaissance masters, here appear in their highest development (Figs. 104, 105).

72. Shafts of Columns, Pillars, and Pilasters.

What is true for the capitals must likewise be claimed for the bases and shafts of columns, pillars, and pilasters, as well as for the entablatures lying on them. Fresh life pulsates in all parts , the endeavor to create new things in the ancient spirit appears, but there is no dressing up of resuscitated ideas with faded flowers.

All forms of free supports known to the ancients were adopted without hesitation by the Renaissance; pillars of square, rectangular, and of octagonal section, half, three-quarter, and entire columns, the pillars frequently diminished (Bologna), columns with diminution, with or without swelling, were brought into use, in which the shafts of the pillars, columns and pilasters were left smooth, or were fluted in the antique manner, corresponding to the orders, with our without cabling,
110 the surfaces decorated by foliage (Palace Vecchio in Florence), or the flutes were spirally twisted (Palace Bevilacqua in Verona).

On other columns, the spirals extend over only the lower half of the stone, while the upper portion is covered by naturalistic foliage and candelabras in low relief.(Court of Palace Buoncompagni in Bologna). Again in others, the lower t third is adorned by little figures and garlands (School S. Marco in Venice), or the shafts are intersected by bossy ashlars of the most varied forms and cutting (Fig. 106; Court of Palace Pitti), or treated like ashlar masonry (Fig. 107; Palace Fantuzzi in Bologna), or the columns bear rings around their shafts, like those of the German transition style (Palace Bevilacqua, gia Zucchini, in Bologna), where the base slabs are likewise of octagonal form.

Still other columns possess bands on their shafts, repeated in adherent form in the vicinity of the capitals; others exhibit naturalistic garlands of leaves freely laid on the fultes (Portal of S. Maria della Grazie in Milan, School S. Rocco in Venice).

Some columns in the court of the Benedictine Monastery in Milan are treated like trunks of trees with trimmed knots, recalling the late Gothic bough-work in the window architraves of

Palace Quaratesi in Florence, on whose origin and importance interesting conclusions are given by Meyer in the book mentioned below.[51]

Note 51. Meyer, A. G. Oberitalienische Fruhrenaissance. Buildings and Sculptures of Lombardy. Part II. p.77. Note 1. Berlin. 1900.

73. Pillars in form of Candelabras.

Besides the conical shafts of columns mentioned, there also occur as original forms, supports in the shape of candelabras, especially in Upper Italy. They are simply treated the the stairways of Genoa, where they are frequently strongly loaded; then richly and in a charming manner in the side aisle of S. Maria dei Miracoli in Brescia, where the shaft appears from an acanthus bell and is ornamented at top by suspended festoons.

These candelabra pillars are in all cases employed in combination with pedestals, in order to permit them to appear more stable (Fig. 109).

On portals and monuments of the Early Renaissance, they continue to be a favorite accessory, where their form and rich ornament likewise seem more endurable, than by their use as strictly considered free supports.

111 74. Construction, and Peculiarities in Form.

Sandstone (Florence), travertine (Rome), marble (Venice and Genoa), bricks without stucco in Bologna, and with a coating of stucco (Vicenza), are the materials employed therefor.

The surfaces of pilasters were often enclosed by a frame, the panel of the frame being filled by scrolls or grotesque ornaments (portals of palaces in Verona, Palace del Consiglio in Verona, and many buildings in Bologna and in Venice), forms that belong rather with the characteristics of woodwork in the interiors of buildings, than with those of external monumental architecture (Compare the wooden pilasters from Siena in Figs. 109 to 111).

112 The stonecutting of the shafts of columns is the usual antique kind, where the astragal of the capital and the apophyge on the base are wrought on the same block as the shaft.

The Renaissance preferred monolithic columns, to which it

ıttracted by the great abundance of them from antique tim-
vhile the Protorenaissance and the middle ages, as well
ormerly ancient Greece, more frequently employed the con-
ction with separate drums. Moreover, there are antique
1 columns, that exhibit the mediaeval practice, where the
. is wanting, as for example, on the splendid shafts of
columns in S. Zeno in Verona, wrought from red marble.
projections at the transition from the circular bases
e columns to the square plinths no longer occur in the
period of the Renaissance, although these are anything
mediaeval invention; they are already to be found on
bases of the columns of Palace of Diocletian in Spalato
are a late Roman invention, that indicates progress in
and construction.
find them transformed in the centre aisle of S. Zaccaria
enice, where the transition from the octagonal base to
square plinth is made by consoles with foliage additions.
the transition is effected in the most beautiful manner
e columns in the Cathedral of Castrogiovanni in Sicily,
on the bases, chimeras with garlands of fruits and flow-
orm the change from the attic base to the square plinth,--
k of the year 1507, according to an inscription.
wooden beams rest on stone pillars, then a carved wooden
piece is inserted between the beam and the capital, accor-
to the ancient Persian precedent (Persepolis, Hall of Xer-
already changed into stone), (Fig. 110). But if stone
are laid thereon, it is treated in the antique way. If
es are substituted, then the Renaissance adds nothing new
it employed the three methods of setting the arches the-
used in Roman antiquity[52] and either interpolated the en-
arrangement of the Roman entablature with architrave,
e, and cornice (S. Annunziata in Florence), or it is sat-
d with a stunted entablature after the Byzantine custom,
it provides a plain or decorated impost block with crown-
mouldings (Maddelena de'Pazzi, Innocenti, etc. in Florence),
places the archivolt directly on the abacus of the capi-
(S. Maria Novella, various cloisters in Florence and oth-
laces).

Note 52. Compare Part II, Vol. 2, Fig. 241, p.264, of this Handbook.

The antique exhibits atlantes and caryatids as free supports. They reappear in the Renaissance, the former chiefly as supports of balconies at the principal entrances of palaces (Bologan, Genoa), treated as complete figures and as hermes (Fig. 112). They are also to be found as the richest treatment of the window piers (Milan, Verona), and we see caryatids as lightly clad supportess in the Stanzas of the Vatican (Figs. 113 to 117). Antique caryatids stand detached like columns, exhibit a certain uniformity in design, but must always stand immovably with a burden on their heads, and suit the unavoidable. Those of the Renaissance are otherwise, which oppose their weight and passive resistance to the load laid upon them. Raphael has even assigned to his female figures another function in order to permit them to appear with more freedom. The idea of employing the human figure as a free support is everywhere the same, it recurs in all periods. But the embodiment of it in the Renaissance is totally different from that shown us by the antique. Here also is no stupid echo!

For the members of the architraves of doors and windows, as well as for cornices, the antique course is followed, in the earlier period, in a rather uncertain and fumbling manner;
//6 the wide mediaeval architraves, which appear in the brick architecture of Upper Italy, have much influence herein, understood ind fixed in the High and Late Renaissance.

The Renaissance is rich in picturesquely transformed details of antique architectural members. To mention all of them would fill an entire book; but I must refer to a few.

On cornices is frequently found the water-drip treated in a beautiful way, and indeed as an ogee moulding with applied leaves (Door in the Badia near Florence); then the facia is ornamented by scalloped patterns on the architrave of the doorway mentioned, and on those of Palace Vitelleschi in Corneto; also simple or triglyph-like consoles with incisions and drops between architrave and cyma, on the friese of the great main entablature, a motive that the great Bramante executed on a great scale on his Cancellaria and on the charming cloister of

S. Maria della Pace in Rome, that also occurs in the court of Palace Venezia in Rome, and reappears on Palace Fantuzzi in Bologna and on many Genoese palaces. Vignola gives a pretty further development of this motive in Fig. 90, where the antique horizontally projecting volute-console of the principal entablature is combined with the vertical console in the frieze.

The impost cap on the Arch of Septimus Severus in Rome is composed of a crowning cyma, a dentil-band, and the same supporting or projecting members; it thus shows the same elements in the same sequence as the window-sill belt-course of the Florentine rusticated palaces; except that the dentils are there flat and insipid. I have attributed these sill-courses to mediaeval influences, are they not really a reproduction of this antique impost cap in a less projecting form, and are not the mediaeval allied forms likewise based thereon?

75. Ornament.

The ornament sometimes appears naturalistic, sometimes conventionalized, and figure ornament likewise. The ornamental mouldings are the egg-and-dart, heart-leaf, beaded astragals, interwoven bands, wave, fret patterns, adhering more or less closely to the antique. Bad and good occur together; the more severely Grecian forms have mostly disappeared.

The foliage on the capitals, the foliage scrolls, festoons of flowers, leaves, and fruits, the filling ornament and friezes are first executed in accordance with the material selected for them, then they are of their period, depending on the knowledge and invention of the master. Foliage in terra cotta must with reference to the properties of the material bear a character different from that executed in bronze: that made in wood, another from that in marble, and the latter is again otherwise than that wrought in sandstone. Hence only like may be comprared with like, i.e., only woodwork with woodwork, stone ornaments only with stone ornaments, etc. And if we thus camcrae the works of previous ages with those of the Renaissance, our estimation of the worth of the last mentioned art period must be conceivably the highest.

The flora, on which its ornaments are based, is entirely native, accessible to and understood by all. It is reproduced

as it is, or is conventionalized to suit the material. The same is true of men and animals, when these were to be brought
117 into the domain of architecture. For conventional ornament, the Renaissance chiefly relied on the antique. I say "chiefly", since this is not invariably the case, and it also created for itself.

Thus, for example, the large foliage on the capital in the court of the Innocenti in Florence has nothing to do with the antique, and the so-called acanthus has in its outline and surface treatment, both in good Roman as well as in the best
118 period of the Renaissance, much more similarity to the leaves of certain species of oaks (Figs. 118 to 120), than to the well known acanthus. This is already true for the leaves of the Biga[53] of the Vatican, that magnificent example of Roman ornament, and the artist of the sarcophagus of Tomb Marsuppini in S. Croce at Florence (Fig. 121), that contemporary work of equal rank in the same stone, has neither given space to the antique treatment of the acanthus. A comparison of the two works is interesting: they both present the best of their time, and the work of the Roman appears more flexible than that of the Tuscan. Both follow the same grand ideas; to allow naturalistic flowers and scrolls to spring forth from conventionalized large foliage, -- to combined conventional and natural together!

Note 53. Compare Part II, Vol. 2, p. 250, of this Handbook.

119 Where it is permitted to be entirely naturalistic, the ancients are almost of equal rank with the Renaissance masters. The candelabrum with the sprays of roses in the Lateran[54] is entirely naturalistic; nature is simply copied. The same is the case for various festoons, for laurel branches on marble friezes, that are to be found in the Museum Naticnale in Rome, for different garlands of fruits and flowers on silver vessels and on bronzes in Pompeii, Naples, and other places.

Note 54. Compare Fig. 251 of the same work.

But when and where were more beautiful bouquets of fruits and flowers sculptured in marble, than on the pilasters of the Library in Siena (Figs. 122, 123)? Where are aspiring flower corollas, leaves, and buds, more delicately represented than

in the scrolls of the pilasters of Chapel Pellegrini in Verona? Who has understood better how to arrange garlands and wreaths of flowers beautifully, and to treat them with more truth to nature, than the Robbias in their majolicas, at least in form? Who has shown singing boys more true to nature than
120 those artists? With surpassing mastership, the Renaissance masters are contrasted with everything created in this direction by others. A delicate observation of nature and an extraordinary feeling for beauty form the basis of their compositions with unusual skill in conventionalizing.

76. Naturalism in Art.

Yes, the desire for change and the longing for the mother-bosom of nature, the naturalism much discussed today(but which with us tastes very much of Japan), has prevailed in all ages, and has everywhere been treated with taste; but it has nowhere predominated, because it neither does nor can offer the highest in art! We see it blossom in Egypt already in the epoch of the 6 th dynasty; for whoever will consider the well known figure of the squatting scribe (original in the Louvre) from the most modern point of view, will not recognize the highest degree of naturalism? Who will deny to the designer of the frieze of vine leaves on the so-called Sarcophagus of Alexander (Fig. 134) delicate observation of nature?

The Romans knew and used naturalism, as shown, and the Pisani in the Italian middle ages aroused it again, inspired by antique reliefs, -- a feeling for nature awakened by the forms of the antique! Without once adhering to the antique, "truth to nature and soulful expression, even at the cost of beauty and accuracy, without knowledge of anatomy", was won!

These views came and went and gave place to others: men then worked with a knowledge of anatomy; subjectivism was left unlimited, to stand or fall with its creator, since subjectivism only produces subjectivism, whose results in the domain of art cannot be harmonious, but substantially diverse.

It is a strong thing according to our views, that not alone in art, but also in general, and even in our earthly arrangements, where the good and the tried must fall together, to give place to the novel, merely because change is delightful!

e Renaissance could not pursue another course, than others d already done; but perhaps we may see in its circle a spil, which brought us slightly nearer perfection.

But from these phenomena as well as from what has been said, d every one that has learned drawing will confirm it, we ould deduce as a primitive truth, "that it is easier and re convenient to reproduce nature as it is seen, than to rst conventionalize it, so that it shall be appropriate for finite purposes and materials", and when von Keppler[55] rentlу asked the question, whether the art of today, the reliious Christian art, could learn from the ancient Egyptian, d he was answered as follows:- "Certainly; for what has iefly been lost forms the noble past and stamp of the Egypan; the consciousness that art is not there merely to give easure by its play, but to solve high and the highest probms, the self-limitation and the reasonable moderation in e imitation of nature, obedience to the laws of reason, to e natural laws of art, simplicity, and virginalness, feeling r truth, clearness of understanding combined with depth of ul," to which I gladly subscribe.

*Note 55. Compare Keppler, P. W. von. **Wanderfahrten** und llfahrten im Orient. 3 d edit. p. 84. Freiburg. 1899.*

To the words of our Emperor; "Peoples of Europe, protect ur holiest possession from the yellow race", I give a meang other than purely political. With the most sacred possesons belongs our art also, i.e., the art of European nations! now the most recent tendencies in the German empire appear th the inspiration of the really still primitive art of dyg Japanism, then is an error made, that the "Rococo" has preously made, and which may have serious consequences for us. e beautiful and beneficial forms of the antique and of the naissance are easily thrown overboard, and what do we receve in their place? Certainly at first nothing better![56]

Note 56. Words to this effect and worthy of consideration ve recently been published by Professor C. Schick, Director the Kunstgewerbeschule (Art Trades School) in Cassel, and kewise by Otto Kaemmel in Leipzig in his Essay: "Burschen raus"! Grenzboten, no. 22, May 31, 1900.

inal Consideration.

Final Considerations.

hapters 1 to 10 of the preceding, the customary divi-
Protorenaissance, Transition style, Early, and High Ren-
period of Theorists, Barocco, and Rococo, are ret-
will be evident from the art how this occurs, and
the phenomena in the domain of architecture are ref-
which indeed are separated by time or space, but are
by a wave, which swells sometimes high, sometimes
or a time meets with resistance, that it overflows or
with so much the greater force.
lse is given; the originally quiet surface becomes
it rises into mighty waves, that proudly and majes-
weep along and swallow up all eddies and opposing
which continues in harmonious and uniform movement, -
he culture and art!
and hollows are also to be found in this; the crest
ied by the trough of the waves. But they do not spe-
lves on the sands, they rise ever again to new force,
r tops rising sometimes higher, sometimes lower. The
the migration of the peoples lashed the surges high;
calmed likewise and gave place to a more quiet pass-
wave crests bring us again, first shyly, then abun-
he pearls of ancient art; deities unite in gleaming
he awakened souls of men, not prostrated by the storms
ejoice at the occurrence and controlling them, give
permanent forms.
e Carlovingian period picks up the fragments again of
rt, almost annihilated in these storms, cements them
and where this is no longer possible, creates the
ortions or fashions a new vessel in the spirit of the
he. It is followed by other periods with the same
s; they create new objects, since the new life and
ed mode of life produce other requirements and pres-
problems to the artists; but the "eternal", that
d in antique art, also exerts the ancient charm upon
was never extinguished.
ire Early Christian art and the art of the Cosmati,

the so-called Protorenaissance, and with it all that we denote under the general name of "Romanesque art", are nothing more than further phases of antique art, crests and hollows of the same waves, but which are driven over not thoroughly cleared ground, and hence they frequently make individual spurts! But the primeval cause is the changed conditions and needs of life, with which every movement must reckon.

In this sense there is no Renaissance; it is nothing more than a stronger wave, another phase of antique art, held back for a period by a counter wave flowing from northern France, but even if this had at first the power to flow to the distand East, yet it was mercilessly overthrown by the ancient stronger waves, and it was thrown back far beyond the place of its origin!

And what did it bring to Italy? The constructive and practical attainment of concentrating the masses on a building, where they had to exert resistance to certain forces, and to be satisfied with weaker masonry between such points of application; it substituted the pointed arch for the complete arch form and introduced again naturalistic ornament, that Egyptians, Greeks, and Romans had already thoroughly tried, but in which they did not go beyond certain ground forms in the architectural details of the ancient world; they followed these step by step.

The foreign architects of the North had not grown out of the inexhaustible power of the antique; they were compelled to transform their acquisitions in accordance with Southern principles, -- "they abandoned the life principle of Northern Gothic, -- the change of the church into a framework of outward-striving forces, pressing for development and resistance; they exchanged this for the feeling of the South for space and mass, which the Italians, taught by them, carried still further."

The horizontal was regarded as vanquished in the North; it continued to predominate in the South, and with it the antique continued in all its ancient rights; it showed itself strongest in the contest from the time of that struggle in the Quattrocento until the present day!

"The antique would live again", as many a beautiful song on

the Renaissance begins, --that was scarcely necessary; it was always alive, and that they were capable of a further development is proved by the Protorenaissance and all Romanesque architecture, satisfactorily by their contest and victory over Northern art, and it only celebrated a highest triumph in the endeavors and results of the Quattrocento and the Cinquecento!

The Romanesque mediaeval style is neither a preliminary step to the Gothic, nor does it form a transition to it; it is rather the architectural expression of one of the greatest contests of that period, that was fought under all conditions and circumstances.

A never suppressed existence of antique art was justified, which also conquered its single strongest opponent, -- the Gothic, -- by its nature, at least on Italian soil, and compelled it to also adapt the principles it had understood to the changed requirements in public and private life, with its
/23 flexible system and its eternal expression of form, that did not chill [illegible] into stark rigidity, but rather permitted the freest interpretation; it is this, that may be understood as "Renaissance". It is the reechoing of the antique under changed conditions, but now and nevermore an attempt to revive it or a rebirth!

It always worked with this consciousness and therefore never wandered into desert and purposeless attempts at reconstruction and works of restoration for the monuments of ancient art, nor squandered means or power on such; but it rather drew from them for its uses and was not even shocked at robbing them, where it was possible to lend form and expression to a new problem by the aid of ancient objects.

Nothing betrays any hypocritical tendency in it; everywhere is self-conscious appearance and creation, that recognises the high degree of its responsibility!

And I agree with Kaemmel [87], when he says:- "Thus foreigners in Rome are often irritated by observing that here the mediaeval has recklessly removed or transformed the antique, and the modern period, the mediaeval buildings, according to its own needs and taste; but this rather naive procedure expresses the discovery of an unbroken connection to the past,

whose monuments were not to the Romans something dead or killed, and consequently not as objects of historical consideration or pious preservation, Whatever the middle ages and the modern period have destroyed in Rome, they have always firmly adhered to artistic traditions in their art, and as the Roman imperial period built, especially as they shaped and decorated the internal apartments, that we may see in the churches and particularly in the palaces of the Renaissance well nigh better, than in the remains of antiquity mutilated by it.

Note 57. Compare Antike und Altchristliches in Rom. Grenzboten, No. 39, p.620; Sept 27, 1900.

124 B. SECULAR BUILDINGS.

Introduction.

"--- Its practice (that of architecture) presupposes the largest means of all arts; since it busies many men and brings many advantages, it is also of such importance economically, that sacrifices of time and money made to it are for the good of the entire empire."

Schultheiss, C. Bauten des Kaisers Hadrian. p.13. Hamburg. 1898.

78. Description of the Mediaeval City.

Not alone did the emperor and art dilettant Hadrian in ancient Rome act according to this law; the petty rulers of the Quattrocento and Cinquecento in Italy likewise utilized it. Mostly attaining the mastery unjustly or by acts of force, they were compelled to keep thinkers busy about external things and to take care, that the nobles and citizens should forget how they reached their position, so that artists, the learned, and the working classes should be kept quiet by commissions.

To this circumstance, to the love for fame by those who had risen, the world owes so many beautiful and likewise good works of architecture. Architecture in a noble style was favored by the fact, that the nobility in Italy had already from the 11 th century located its chief residences in the cities. If costly houses and palaces were not built everywhere for this reason, they provided for the buildings of mere utility and common design more favorable conditions, than existed anywhere else

in the world at the same time.

On narrow and uninviting alleys, there were placed beside each other in the North during the middle ages gabled houses with projecting stories, where air and light entered the interior in but limited quantity; to the living rooms themselves was given but little height, and the dear light of the sky, a bright and pleasant sunbeam could scarcely find entrance in the street front of a lower story.

A true and faithful picture of mediaeval dwellings in the South is still given us by the Dalmatian city of Trau. There are the like narrow streets as in the North, only they are here bordered by dark gray stone houses with flat roofs, uninhabitable in the interior, with inconceivably little courts, chicken-ladders instead of stairs, little grace and little comfort, --"cursed damp holes in masonry"!

The less the extent of the city, the easier it was held in case of war, and so much was its capacity for defense increased. The knowledge of this fact forced northern Gothic to
125 build tall houses, to plan narrow alleys and little public squares, and the same conditions had the same effect beyond the Alps as well!

"Crooked streets, sharp corners,
High roofs, twisted stairs,
Fill with justified pain,
Every true artist's heart."

Half in earnest, half in jest, may this mocking stanza be parodied, which was printed by the Hanoverian architects in their festal publication in the year 1862. But it was not only the artists' hearts, but in a higher degree the city rulers, who needed to remove these arrangements in order to preserve their personal safety and power from danger and injury.

79. Transformation of the Plans of Streets.

King Ferrante of Naples made (1476) Pope Sixtus IV understand, that he was not master of the city, while narrow streets, bay windows, and street porticos existed.

The larger cities of Italy emulated the Popes in making their narrow and crooked streets broad and straight, and the removal of porches and bay windows!

The larger cities of Italy emulated the Popes in making the narrow and crooked streets broad and straight, and in the removal of porches and bay windows!

Bologna commenced in 1470 with the removal of wooden porches before the massive houses, good examples of which are preserved and are reproduced in Figs. 125, 126. In their place occur vaulted arched passages, though not for the advantage of an oppressor of the freedog of the city!

Alberti likewise recommended to the ruler in a city the removal of porches, because from them resistance to his soldiers was easy. But the same Alberti elsewhere demands for esthetic and practical reasons the crookedness of the streets:- "The city would appear larger, the houses would present themselves in general and alternately to the eye, shade would not be wanting, the wind would be checked, and the defense against enemies would be easier,"-- if straight streets are avoided. He did not succeed with these views, especially since already before the beginning of the Renaissance, the improvement of the streets had been taken up to a great extent, in which preference was given to a straight course. These changes in the arrangement of the streets had as a further result the permanent paving of streets and squares.

"For beauty, prevention of mud and dust,"Florence, the leader of fashion, had its Place of the Signoria paved (1351), venice its Place of S. Marco (1382), Milan (1412) and Bologna (1470), their streets.

Sidewalks of slabs were arranged around churches and public buildings; the Sienese covered their market-place with travertine ashlars (1513); in other places were used marble slabs, bricks set on edge, and river stones (pebbles). The paving of Rome commenced under Nicholas V, where small, hard, cubical blocks were preferred, with which uneven areas, inlets to drains, etc., could be more easily constructed and leveled, than with large stone slabs, with greater resistance to wear, than if bricks were used.

Everywhere is found an endeavor to create great places in the cities, surrounded by airy porticos, frequently with shops
126 127 behind them. An antique idea is here revived! It must be ac-

/27accepted as an advance, that the Renaissance made prominent in its architectural programmes and its masters developed and published laws and rules for the new architectural style, that it raised on its banner spaciousness even in houses, according to antique revelations, at least so far as it there concerned the dwellings of the cultured, the wealthy, and the great.

80. Characteristics of Dwellings.

Straight fronts, uniform levels of all rooms in a story, omission of all neck-breaking intermediate steps, the arrangement of regular corridors before the apartments, the avoidance of narrow, angular passages and of the makeshift of winding stairs, were the characteristics of Renaissance residences. Alberti preferred to have all rooms on one floor at the ground level, the stairs to be generally omitted, since they were only of use to complicate and spoil the ground plan. He was the first to establish the principle for the volumetric proportions of the internal rooms, to give numerical ratios for dimensions of length, width, and height.

He required from the architect[58], that he should not throw himself at the head of everyone, who wished to build; he demanded faith and confidence from those, who asked for his work or his counsel, and a suitable, but not mediocre remuneration therefor. He preferred to be called two or three times, rather than to obtrude himself once! How different today, when architecture has become a business, and the employe is frequently a nervous and hasty man, who knows better!

Note 58. In De Architettura. Book IX. Chap. 10. Ital. edit.

Alberti desires to have good superintendents for the construction, who will always have an eye on the workmen during the absence of the architect, to keep his honor pure, so that not all faults, resulting from the carelessness or ignorance of others, may be charged to the architect. If he were set before the problem of carrying on a work, which the designer could not complete on account of its magnitude, or from the brief duration of human life, then should he execute it as the designer wished, and not make something new of it, inspired by envy and impatience. Every violation of that law has

always had as a result, that all buildings not completed by the designer have been spoiled afterwards by completion, and have made a bad ending.

The Pistojese architect Lafri recalled these words of Alberti to the great Giorgio Vasari on the construction of the dome of the Umilta in Pistoja, when he set aside the model of Vittori, of which Lafri says, that it was "grazioso e bello", and which would have seved the citizens of Pistoja much money and trouble, if it had been retained.[59] Vasari actually spoiled the building in esthetic and structural respects, which destruction threatened after the mistreatment by him, and which could only be preserved by extraordinary means.

Note 59. Compare the Author's Essay on this dome in Zeits. f. Bauw. 1902. p.14.

What is said by Alberti refers to works, that could not be completed within the age of a man or somewhat more, or that remained unfinished for other reasons, but whose completion remained an unavoidable necessity, -- and not to sentimental works of restoration or the rebuilding of half destroyed structures of their ancestors. In spite of all love for the antique, there was in that period no greater ruler or more finely cultured counsellor, to commission an architect to restore a-
128 gain a monument in the so-called antique spirit or on the ground of doubtful ruins. They permitted their beautiful inspirations to remain on paper, and neither they nor other persons squandered good money on venturesome things. The knowledge that they had derived from the ancient works was employed in the intellectual and practical ways required by the new life. Not to satisfy caprice and self-conceit, -- for no one could acquire fame by such undertakings, according to the ideas of that time, -- did they desire the ancient ruins to live again; but men still less desired to take away their charm, than to rob them of historical memories.

81. Care of Monuments.

Sometimes the hall of a bath or temple was changed into a Christian church, which had a different purpose; but new buildings in ancient garb were not created from them without purpose or thought; which is indeed not different from that, which

comes from the hands of our modern architects with their mania for building churches, palaces, and castles, under pretence of the "care of monuments".

Only those were usually allowed to fall into ruin, which were no longer to be preserved, and they were then utilised for the purposes of men; others required the preservation of those received from predecessors, but would afford no experiments.

I hold this point of view to be always more sound than that, which proposes to now restrict our much esteemed protection of monuments, in which architects frequently overestimate their powers and underrate the monuments, which have become historical, and at best give their own new creations on unfit places, which all later ages must condemn or ridicule!

The Renaissance masters paid more attention to the hard principle; "Only the living are right", and they did not make again usable things long obsolete in the opinions of those then living, in order to ask themselves after the work was completed: what now? In allied cases, we make "museums" of them, into which the most recent art may fully enter.

82. Knowledge and Abilities of Architects; Employers.

Alberti required from architects little or much, just as one may take it; "La Pittura e le Mathematiche", i.e., a good knowledge of drawing and of mathematics (by which moreover no differential or integral calculus was to be understood), with these arts, --- painting, drawing and mathematics, -- combined with study and industry, the architect would gain from those later born and would be assured of gratitude, wealth, fame, and work! He says here, that the architect need be neither a lawyer nor an engineer, neither an astrologer, musician, or rhetorician, to explain his plans. He already earlier gives the good advice of Faust to Wagner; "Understanding and good sense express themselves with little art; and if you are in earnest in speaking, is it necessary to hunt for words?"

Filarete, the less distinguished, less learned and self-conscious master, expresses himself more in the style of a man of honor, for he says that the architect should provide in the

best manner everything necessary for the building, as well as reliable workmen, carry on the work with care and as economically as possible, keep clear accounts, make reports and statements on request, make payments punctually, and issue orders to a superintendent concerning the daily work. The qualified architect deserves the highest esteem of the employer, not a-
129 lone on account of his rarity, but chiefly because he is placed over an affair, dearer to him than to any other.

He compares the building with the human body, since like it, it must first be conceived, when he says; "For the owner confides his ideas to the architect, he adapts and develops them for months, just as the woman does the child; and just as the woman at last brings forth the child, so does he bring forth into the world the idea of the building, even in the shape of a wooden model. The latter is now treated with endless care, just as a new-born infant by its nurse; somewhat later, when a teacher is given to the child, the architect seeks skilful mechanics for his building, naturally, in concurrence with the owner, as its father.[60]

Note 60. Compare Antonio Averlino Filarete's Traktat über die Baukunst etc. Published for the first time and edited by W. von Oettingen. p. 66, 67. Vienna. 1890.

In spite of these fine conditions, Filarete gives to his princely employer in the most courteous and well-meaning way the good counsel, "if he would understand plans, then should he first read some on the subject and then learn to draw", but he should then always be more quiet about this than his colleague Apollodorus, who, when the later emperor Hadrian was present at a conference on building plans between him and Trajan, put him aside with the words; "Go away and paint your pumpkins, for you understand nothing of this."[61]

Note 61. In the domain of still life painting, which is likewise so common in Pompeian paintings, Hadrian accomplished no little; but Trajan did not favor his love of art. Compare Schultheiss, C. Bauten des Kaisers Hadrian. p.4. Hamburg. 1898.

Chapter 11. Palaces.

"The ideal and general problem of civil architecture is less

clearly expressed in royal palaces and public buildings, which have to satisfy their peculiar and different purposes, than in the private palaces, which bear the unity of will and purpose on their faces, and by their similarity are able to form a definite style group."

Burckhardt. Geschichte der Renaissance in Italien. § 90. p.167. Stuttgart. 1878.

83. Diversity.

The Italians already at an early date distinguished between palaces, villas, and houses. Filarete subdivides private buildings into residences of the nobility, of the citizens, and of the lowest class; he speaks of the palace of a nobleman, of the residence of the merchant, of the house of the artisan, and outside the city, of the villas of the nobility, the dwellings of the citizens, and of the peasants' houses.

According to the local conditions, the customs and habits of the occupants, special types of palaces and houses were developed, which may be classified as follows, in accordance with the precedent of Burckhardt.

84. Florentine-Sienese Type of Palace.

1. The Florentine-Sienese type of palace was the earliest that held the first rank for a long time. It was preceded by the Italian Gothic palace, which had nothing to do with the mountain castle with its usually necessarily irregular ground plan, and whose most important characteristic remains its regular plan. "The unity of the facade and of the ground plan
130 was the mother of all other unity and architectural principles". The generally prevailing form of ground plan is that of the antique house, based on the grouping of the rooms around an open court surrounded by porticos. Entire uniformity dominates the exterior, the means are equally distributed over the whole; there is no especial distinction of the main entrance; all grouping of the masses is scorned; the construction with columns and straight stairways is preferred. The windows of the upper stories continue to be round-arched until the beginning of the 16 th century, the stories are marked off by window-sill bands; in the courts, a cornice extends around above the arcades, and

a string-course beneath the windows, while the space between them is ornamented by medallions, coats of arms, etc.

Under the influence of the Tuscan masters is also the palace architecture in Urbino, as well as the palaces in Romagna and in Ferrara. The Bolognese palaces dispensed with the repeated enclosed design lengthwise on account of the continuous street porticos.

85. Venetian Type.

2. The greatest contrast with the former type is made by the Venetian. In it appears a completed Gothic inheritance. In the centre is the loggia, on the right and left of which are separate windows with projecting balconies, which rejected the more severe architecture, for by the recession of the walls of that story was created a safe and secure place for the owner of the residence, when he wished to look out on the occurrences on the street (Compare Palaces Uguccioni, Pandolfini, Pitti, in Florence).

86. Roman Type.

3. A third type is shown by the Roman palaces, where only the belts, string-courses, and the enclosures of windows and doorways are made of dressed stones, which are always very strongly treated and project from a plastered wall or one executed in rough brickwork. Courts with piers and columns (Courts all Romana) are there indicated. But the buildings of the later period are especially to be classed here, that first received its definite development "in a period of stagnant politics, of counter reformation, and of increased elevation of the Spanish style." The immediate architectural result is increased width and height with continued simplification and rudeness of detail, even to brutality. The commencing point is formed by Palace Farnese in Rome. The masters, who devoted themselves to it were; Giulio Romano, Vignola, Vasari, Ammonati, Alessi, Pellegrini, Palladio and others, among whom Alessi longest retained a rich and pure execution in details. The courts no longer have the "refined elegance of the best among the earlier, but instead of this, an earnest greatness or a spirited magnificence."

Further consequences are some changes of the vestibule and

the introduction of the so-called gallery, an arrangement of a long and narrow hall borrowed from the North, according to Scamozzi's statement. It is derived from the France chateaus, where it was already mentioned before the beginning of the Renaissance in Italy. It was an element of the plan even in the middle ages, and it served in the 14 th and 15 th centuries as a gallery for receptions and exercise in the chateaus of the feudal nobles. Froissart even (1388) speaks of the gallery in the Chateau of the Countess of Foix. Somewhat later (1404), a gallery was mentioned in the Chateau of the Good Duke Louis de Bourbon. In the year 1432, the Duke de Betnfort built in Palace des Tournelles a gallery 18 toises long and 2 1/2 toises wide, which was ornamented by mural paintings (green grounds with family coats of arms and weapons). King Rene in 1466 had galleries built in various chateaus (Chateau de Reculee, Chateau de la Ministre, and Chateau de Chanze). One was mentioned in 1440 in Toulouse, and there was said of it; " Ambulacram, quod nos galeriam vocamus"(Hall, that we call gallery), and Du Cange cites a plan of 1471, on which is; "Galeria sive corredor domus"(Gallery or corridor of the house). During the Renaissance, Marie de Medici brought into fashion monumental galleries and set Rubens to decorate them.(The most magnificent galleries are found in the Chateaus of Blois, Chambord, Chenonceau, Fontainebleau, in Palace Luxemburg, the the Gallery of Apollo in the Louvre).

87. Type of Facade with Colossal Order.

4. A last type, that of Late Renaissance, especially favored in all Italian cities, particularly in Rome, Vicenza, Genoa, and Milan, exhibits on the facade a colossal order, i.e., colossal columns or pilasters extending from the base to the main entablature, independently of the number of stories.

132 Certain models precede these typical palace facades of the Italian Renaissance, especially the Tuscan type of the Gothic palace (Fig. 128), a facade design from Siena; Fig. 129, a facade design from Pisa), in addition to which, the influences of the antique theatre facade is not to be denied (Fig. 130, system of the facade of the Colosseum in Rome). The antique and the mediaeval strive here for supremacy, which the antique

eventually retained.

For the Renaissance palaces of Venice, the Gothic palaces of that city served in all their parts as models; their arrangement of windows, the loggia, the balcony, the water portal, -- remain the same, and only the doorways, windows, belts and cornices change their forms and return to antique art.(Figs. 131, 132). On the facades of palaces in Gothic and Renaissance styles, the tectonic skeleton is the same; merely the decoration is different. The pseudoperipteral colonnades of antique monuments (Fig. 1331 Maison carree in Nimes) are reflected in their grandiose effect in the heavy facades of Michelangelo, of Palladio, and of other masters of this epoch.

88. Representatives of the Types.

As chief representatives of the first type, which is still influenced by the Gothic, may be taken Palaces Pitti, Riccardi, Strozzi, and Gondi in Florence, Palaces Nerucci, Piccolomini, and Spannochi (all between 1460 and 1474 and ascribed to Rossellino and di Giorgio) in Siena.

89. Palace Pitti.

Absolute certainty or documentary proof does not exist, that Brunellesco (1377 - 1446) built Palace Pitti, as commonly assumed. Even the year of its erection is uncertain, for which 1440 is usually given. But according to the opinion of von Fabriczy[62], in no case should a later date than that given be taken for the construction of the model of the building.

Note 62. Compare Fabriczy, C. von. Filippo Brunelleschi. His Life and Works. p. 302. Stuttgart. 1892.

The owner of the Palace was Luca Pitti (born 1392, died 1472), who supported the conspiracy against the Medici in 1466, but abandoned his confedarates and so did not share their fate, -- the punishment of banishment. We find Luca shortly before his death again holding the honor of being one of the Venti di Guerra, and that after the catastrophe, he built further on his Palace is shown by his acknowledgement of authority of the year 1469, wherein is mentioned "a new house, that I have built and which I still continue to build, likewise for a dwelling for myself and my family."[63] Although his building brought him repeatedly into financial difficulties, yet he died as a rich man.

Note 63. Compare the same work, p. 323.

If 1446 was the year of Brunellesco's death, it is then act-
133 ually true, that the origin of the model of the building cannot be placed later than 1440, for which von Geymuller suggests, that it might possibly be a repetition of one formerly prepared by Brunellesco for the Palace Medici, which the owner declined to accept, as being too large, and which the master threw aside in anger at its rejection. How far the building had proceeded, when Brunellesco died, we do not know; nor have we any knowledge of the original plans, nor of its ground plan or elevation.

Representations on old drawings, engravings,[64] and paintings, afford us information concerning them, particular reference being made to a picture of the city given by Rohault de Fleury[65], belonging to the year 1478. On it is certainly drawn and named on the correct site a Palace of Luca Pitti with its garden, and which is in three stories with an increased height of the upper story at the centre, in the lower story being 3 doorways beside each other, and containing 5 windows in each of the two
134 upper stories. The representation is rather poor, and nothing more is to be made out of it architecturally, than of the Palace of Lorenzo de Medici likewise given on the same drawing, designed in 3 stories with 4 window axes.

Note 64. Compare also the engraving published by Müntz(Histoire de l'Art pendant la Renaissance en Italie, Vol. 1, p.50); View of Florence at the end of the 15 th century from the original in the Berlin Cabinet of Copperplates.

Note 65. In Rohault de Fleury's La Toscane en Moyen Age, etc. Vol. 1. Florentia. Pl. 1. Paris. 1878.

We merely deduce from the picture of the city in the year 1478 the conviction, that the two Palaces were then of limited extent, compared with that existing today, that they were under roofs, and that Pitti saw his "second house" so far completed at his death, as he desired to build it. This original building was only planned for 7 window axes, so that its facade, designed in 3 stories, consisted of 7 windows in each upper story and the 3 portals and 4 mezzanine windows in the ground story.

A drawing in the Uffizi has been made known by von Geymuller

135 and Stegmann[66], that may represent the original sketches of Brunellesco for the Palace of Luca Pitti. Taken quite generally, it may be held to be so; it is conceived in the forms of the Palace as built, being designed with 7 axes and in 3 stories; it has the continuous balcony with columnar balustrade, but not the same proportions. The windows are formed without any subdivision or tracery as simple and large round-arched windows, exceedingly slender in the uppermost story, whose imposts are marked by string-courses. The facade ends with a stone cornice of slight projection and without an attic story.

Note 66. Geymuller, H. von & C. von Stegmann. Die Architektur der Renaissance in Toscana, nach der Meistern geordnet. etc. p. 63 - 65 of the text. Munich. 1896.

A similarity of this sketch to the representation of the Palace on the picture of the city is considerable.

In the work mentioned[66], it is shown that the ancient angles of the original building, with 7 axes extending through the entire height of the 3 stories, may be recognized in the jointing, "but which is interrupted by the bonding of the ashlars and the voussoirs". This concession, that the continuous angles are interrupted by new bonding ashlars and voussoirs, is here rather fatal evidence. I have frequently examined the building for this, but could discover no irregularity in the bonding, other than what elsewhere on other window piers is seen toward their centres. Neither does the large and beautiful Plate 13 in the same work show us any such occurrence. Separations or irregular setting between the older and newer portions of the wall, whose setting was about 200 years apart, I have been unable to find.

136 Canti[67] mentions certain marks on the building itself in favor of its erection with 7 axes. He proves that the central structure has no developed base for the extent of the 7 axes, that for this the ashlars with bosses first begun at a certain distance from the external ground, and that a base was planned here, as on the other Florentine palaces of this time. The absence of the base is correct; no arrangement exists for the addition of a base, the continuation of the side base

might have just as well been intended. I might rather assume that a base was here originally actually constructed, but that it was removed later, as thought proper. It would be idle to remove a seat along the building, when the Palace of Luca Pitti was elevated to become a princely Palace. Conti remarks thereon, that in all stories of the actual building for the 7 axes, the characteristic iron holders for torches and banners exist, and that they even have rings in the ground story, but that they do not occur on the adjacent portions of the building. This is again true and may[68] be verified on any large photographic view of the building.[67]

Note 67. See his work, p. 316 - 321.

Note 68. Compare Plate 15 of the work mentioned in Note 66.

On the other hand, it may still be proved, that on a copper engraving in the passage connecting Palace Uffizi and Palace Pitti, "on the picture with the lady", that the building with 7 axes ended with a weak string-course and a low loggia of piers with a strongly projecting cornice with rafters, from which it follows, that the entire upper story was not executed by Brunellesco, or the latter was also merely planned by him, which might well be judged to be correct, especially when Vasari[69] remarks concerning it: "which he commenced for the same nobleman within the city and completed it to the second upper story in such magnitude and splendor ---". Unless the future teaches us differently, we may now indeed say, that till the beginning of the 17 th century, the Palace Pitti existed in 3 stories with 7 axes. The picture of 1478 assumes it to be completed, so that Luca would have lived to see this, as he died in 1472. Seventy seven years later, on Feb. 3, 1549, a great grandson of Luca, Buonaccorso di Luca Pitti, sold the Palace to Duke Cosimo I, who acquired it for his wife, Eleonore of Toledo.

Note 69. Edition by Schorn. Vol. 1. p. 210. Stuttgart and Tubingen. 1837.

The monument now experienced extensions and alterations in both the interior and on the exterior. Its great arched doorways were removed from the ground story, these being limited to a single one at the centre; they were filled by great rect-

rectangular windows, which received pediment caps, the sills were supported by consoles, and lions'heads were paleed in the balustrades. These alterations were carried out by Ammanati (1568) with reference to the changed uses of the rooms in the ground story.

Ammanati, who died in 1592, built also the great court (15-58 - 70), of which Grandjean de Montigny and Famin say, that its columns offend good taste, sound sense and the purpose of the column, whereby the disired effect was not attained, as by the rustication on the exterior. It is not to be denied, that
137 when Ammanati transferred the rustication to the shafts of the columns, he did not have a peculiarly happy conception: he must say to himself, that he could not compete in the design of an open court with the effect of the street facade. The courts of Palace Riccardi and of Palace Strozzi are more fortnately and better conceived, since they do not attempt to recall the external architecture or the street facade, and the master sought no connecting point between them.

The drums of the columns of the Tuscan order, coursed in the form of cheeses on each other, do not produce the impression of strength: but they appear more graceful than those of the Ionic order placed above them, where the shafts of the columns seem to be concealed by a number of rectangular slabs, and the Corinthian, where smooth drums alternate with those swelled to pattern. The desired graduation from the sturdy through the graceful to the rich is not attained.. Antique models (for example on the Gate Porta Maggiore in Rome or the Amphitheatre in Verona), are already better. Likewise the rusticated framelike enclosures of the wall panels between the columns are not a happy addition, for they make the entire architecture unquiet.

But Ammanati also built the wonderful ending of the court on the garden side, the grotto with the semicircular stairway and the fountain above it, to him should be ascribed the main cornice represented on the already metioned "Picture with the Lady", if it was indeed actually constructed, and it does not represent a provisional structure, like that on the portico of Chapel Pazzi (Fig. 184), but which as executed, no one would take for

"a low loggia with piers and a projecting cornice with rafters"!

The design of the garden adjoining the court and connected therewith is the creation of Tribolo, which was carried further by Buontalenti and Giovanni da Bologna. After 1620, 3 win-
138 dows were added at each side of the central building, and the two-story portico of the principal facade was begun by Giulio Paregi, nephew of Ammanati, and completed by his son Alfonso.

The projecting wings with the arcades belong to a still later period; the left (of the observer) one was executed in 1764 by Francis I, the right one in 1783 for Pietro Leopoldo by Ruggieri, but the latter was only finished by Pasquale Poccianti in 1839.

In 1640, the central building had deviated about 1/3 braccio from the perpendicular in consequence of many repairs in the interior, but it was brought true again by means of anchors by Alfonso Parigi.

What astonishes us today is not the originally conceived design in stone, but rather the happily joined parts of the building, that have arisen in the course of 400 years, but appear as a single inspiration, as if an originally so designed whole of majestic grandeur and effect! "Men ask themselves, what one of the world-disdaining gigantic men, furnished with such means, could go so far out of the way of all mere beauty and pleasure?", cried Burckhardt [70], and the answer thereto may be read in the text of the work mentioned in Note 66: "Princes and architects deserve the eternal gratitude of later ages, that they always continued to build in Brunellesco's forms", - at least so far as concerns the principal facade, and every new stairway built at the entrance of a garden religiously adheres to the style of Brunellesco in its forms. This is the sole and the best care of monuments, the only true protection of monuments in the spirit of Alberti, which has been applied to a work of such high importance. No owner and no architect desired here to supplant each other; all later men subordinated themselves to the great spirit of the first creator of the nucleus of the building, and thus created a work, which appears like a homogeneous structure, -- a monumentally expressed warning to us moderns!

Note 121. Compare Burckhardt's Cicerone, p.308. 7 th edit. Leipzig. 1898.

The upper sketch on the adjacent Plate depicts the story of the origin of the monument in a visible way, and it shows clearly and within limits, what is original and what are additions. The main facade exhibits the archaic principle of the diminution of masses upwards, attempted by a slight recession of the different stories, and by the graduated expression in the ashlar work. The building is characterized by stories of approximately equal height (ground story 38.9 ft., second story 38.1 ft., and third story 38.8 ft.) , with a height of the building to the top of the attic amounting to 116 ft. by strong courses 3.15 ft. high, with equal windows 24.6 ft. and 24.4 ft. high with a width of 12.18 ft. wide, arches of equal depth, window piers of equal width, and by the absence of all ornament in each story.

But one question yet remains open; what was the original form of the window openings? Did the open window areas, measuring over 300 sq. ft. each, remain undivided as in the small sketch design, or as in other Florentine palaces, were not stone columns and arches or stone mullions and transoms inserted in them, in order to make it easire to close them? What now exists, the inserted masonry with a door opening on the balcony, over this being a window in 4 divisions and a circular opening above that, these are additions in the period in which stucco-workers and painters decorated the public apartments, when Pietro da Cortona (1596 - 1669) was employed on the building.

139 Lunettes, side compartments, and vaults of the ceiling, commence above the windows with mullions and transoms, likewise rectangular inside. In the Sale di Marte, the round-arched window is rejected in the ornamentation: where it disturbs this, it is walled-up again, or as in the Sala di Giove, it is transformed into an oval shape. This position of the window openings within the great arches of the facade is a contradiction, like the arrangement and form of the magnificent ceilings to the architectural work.

We now find in all the window jambs of the second and third

stories, both in the older as well as the later parts of the principal facade, pilasters arranged with peculiar capitals, that bear the beginning blocks of an architrave, above which rises a plain arch soffit. This arrangement is entirely overlooked in the publication of this Palace by Grandjean de Montigny & Famin, while it of course appears on a photogravure by Raschdorff [71], but the text does not refer to it in any manner. (The dimensions of the windows are there given as 21.2 × 15.5 ft., while they are actually 24.5 × 12.15 ft., and if it be added from Redtenbacher, that the ashlars have a length of 27.9 ft., this refers to a single one of these in the ground story on the left of the higher central building, and when it is further considered, that the bosses are so large, that one can find shelter from rain beneath them, this is in the most extreme case to be understood of the terrac below them, which is of later date and acturall projects 3.28 ft. and more; one cannot get beneath them, since they extend down to the ground.

Note 71. Raschdorff. J. C. Palastarchitektur von Oberitalien und Toscana. Berlin. 1888.

But in the work on Tuscany mentioned in Note 68, these jamb pilasters are represented on Plate 13 a, and it is stated in the text (p.65), that "the pilasters in the jambs of the windows exhibit capitals of a form apparently pretty early". Several bosses also bear stone-cutters' marks, as I stated for Palace Riccardi (see Art. 32). Fig. 135 gives this form on the windows after my own drawing, and I add two others, one of a capital in S. Croce, the other of one from one of the cloisters of S. Maria Novella, whose details recall the capitals of the Pitti pilasters, -- therefore they are of Gothic origin!

Hauser gives expression in his "Baustillehre" to the view, that the window spaces were formerly fitted with stone-work, like the other palaces of this period in Florence and Siena, an idea that cannot be absolutely rejected. Were this the case, then must a treatment as on Palace Rucellai be assumed, since the beginnings of an architrave exist above the pilaster capitals, or as on Palace Piccolomini in Siena, or on that of the same name in Pienza. Moreover a division into three parts by perforated slabs above the architrave according to

Fig. 136 is not excluded.

The original interior exists no longer and could scarcely be compared with that presented to us today. The "ambitious" Pitti could not show what the Grand Duke of Tuscany collected here from 1550, when he fixed his residence in Palace Pitti, until now, when the gardens and parks have increased and there exists the finest conceivable growth of trees.

The ornamentation of the walls and ceilings, the unusually broad architraves of the doorways, of the most costly kinds of marble, the incomparable pictorial decorations, the good arrangement of the rooms, the abundance of gold and silver articles, the cups of gold and enamel, the precious faience and porcelian, -- all harmonizes in the noblest manner, and we remain entranced by the charm of the combined truly monumental and the refined minor art works. A Sunday morning in the Argentaria, the treasury of the Palace and of the House of the Medici, is a divine service in the Temple of Art, so full of consecration, so elevating and blessed for those in the present age of the "youthful tendency", who have not lost all more delicate feeling. After a tour in the Palace, under the reaction from what has been seen, whoever for a few minutes takes a place at the wide table in the festal hall and looks beyond Ammanati's court to the grotto with the white marble fountain, whose waters gleam in the sun like crystal and silver, and also towards the great lawn enclosed architecturally by rows of seats, shaded by towering ancient evergreen oaks and cypresses, broken by brightly colored flower beds, above which stretches the deep blue vault of the heavens, -- he learns to recognize the men of the Renaissance, to understand and to envy their lofty culture, to restore and combine their feeling for the eternal beauty and art into it!

90. Palace Medici-Riccardi.

Not so mighty in impression or of such great dimensions is Palace Medici-Riccardi, built by Michelozzo (1396-1472) for Cosimo the Elder (1430), whilh was originally only designed to be half as large, but was considerably enlarged in 1714. The staircase of honor was by Battista Foggini. the building passed to the Riccardi by sale in 1659.

What now exists no longer coincides with what the master originally intended. The Palace is represented in the picture of the city previously mentioned[72] as a building in 3 stories with 4 axes on the facade, a bench-like base and two large toruses in the ground story, coupled round-arched windows in the second and third stories, ending with a bold entablature with modillions, adjoining an enclosed garden, not far from S. Lorenzo.

Note 72. Compare Rohault de Fleury. Vol. 1.

The system of the facade (Fig. 137) is as simple, definite, and clearly expressed as that of Palace Pitti; regularity in the arrangement of the windows, intended more for the effect of the surfaces, than for their subdivision, separation of the stories by window-sill belts, the crowning entablature, are designed with reference to the entire height of the facade. What is merely indicated on Palace Pitti is here carried out with assured security; the graduation of the rustication in the stories from heavy to refined. The ashlars are not all of equal height in the same story, the jointing is not everywhere above criticism; the antique-Roman principal entablature is too large and too heavy in design.

Wrought iron holders for banners and torches with rings, transferred from Gothic, but executed in the forms of the new style, exist on all the stories. The angles of the building are in the middle story decorated by the massive stone shield of arms of the Medici, suspended from a volute bracket by loops of ribbons; wrought iron lanterns project on the ground story, an arrangement likewise taken from Gothic (Compare in Chap. 14, under c; Palace Vitelleschi in Corneto). The columnar court is beautiful with its Composite capitals, coupled windows in the ground story, and the open loggia with horizontal roof. The archivolts are banded in the antique manner, in which mouldings in late Roman style reappear below, as on Palace of Diocletian in Spalato. The arches rest directly on the capitals; an architrave extends above them, leaving between them and the window-sill belt a high frieze, which is adorned by medallions and large garlands of fruits executed in sgraffito. The wall surfaces of the middle story are subdivided into ashlars in

sgraffito and it ends at top in a palmetto frieze.

In spite of its enlargement, the building has remained the residence of a nobleman and has never risen to the rank of a palace, like Palace Pitti.

The beautiful palace chapel in the interior is notable for the precious frescoes of Luca Giordano (1683).

142. 91. Palace Strozzi.

The last word in the style of Tuscan palace architecture is spoken by the masters of the Palace built in 1489 for Filippo Strozzi, the famous opponent of the Medici; Benedetto da Majano (d.1497) and Simone Pollajuolo, called Il Cronaca (d.1508).

Drawings in the Uffizi and the still existing model of the building, show that in this case, the building was erected on the whole just as it was planned; but the owner did not succeed in making it detached on all sides. It is designed and built in 3 stories, with 9 axes on the narrow side and 13 axes on the longer side, the ground story has the characteristic base bench, contains the great entrance doorway and small rectangular windows; the two upper stories each have 9 or 13 coupled windows with round arches, and they are separated from each other by window-sill belts, with but slightly graduated rusticated masonry of courses of unequal height, wrought to a fixed pattern, with heavy excentric bearing arches over the windows (deeper at the crown), ending with a heavy round (replacing the antique architrave), above which is a plain frieze and then the antique Roman main cornice with modillions, egg-and-dart moulding and dentil band, designed in the most elegant way in its height and its projection and proportioned to the entire height of the building.

The corner stone was laid on July 16, 1489: after the death of Filippo (1491) and of its first architect (1497), the work was carried on by the sons and by master Cronaca, but was only completed 25 years (1533) after his death.

The window piers are adorned by the characteristic wrought iron holders for torches and banners with rings, the angles have iron lanterns by Nicolo Grosso, called Caparra, and over those are large consoles with robbons for the stone coat of arms of the family.

dow-sill belt to another is only 22.9 ft., while it reaches 30.7 ft. on Palace Strozzi, one thus exceeding the other by 7.78 ft. The largest room in the Palace does not exceed an area of 26.8 × 53.3 ft. The porticos of the court have unequal widths of 14.1 and 25.9 ft.!

Burckhardt calls this proud building: "the noblest and highest form, that a stone house may attain without connecting or continuous members, by mere contrast in the treatment of surfaces", .. what every professional may well believe!

In the work mentioned in Note 66, on photogravure plate 2, Benedetto da Majano is given as master of the work in accordance with the former acceptation; Benedetto is likewise mentioned as master in the latest edition of the "Cicerone". But in the biography of Giuliano da Sangallo (1445-1516), (compare p. 12 of the text of the work mentioned), he is designated as the designer of the building, on the ground of information from the wooden model of the building and of the building accounts published by Jodoco Del Badia[73]. According to these, old foundations were removed from the excavations for the build-
173 ing in August, 1489, and the new walls were commenced in 1490, from which time forward Cronaca was employed on the building; Giuliano da Sangallo received for his first general model in wood, between September 19, 1489, and the ensuing February 8, 115 lire and 10 soldi in three payments "per sua manifattura e parte dilengname messo in fare el modello del deficio della chasa".

Note 73. See Raccolta etc. di Jodoco Del Badia. Florence. 1886-7. (See text of note in Italian).

A view of the "primo modello di legno" was reproduced by photography on Plate 15 of the work mentioned, and we see from it, that the present design in 3 stories with 9 and 13 windows, with the entrance doorway and the rectangular mezzanine windows, the coupled round-arched windows with columns and excentric discharging arches, as well as the antique-like cornice with modillions, all belong to the original design. But on the g ground story of the model are placed rusticated ashlars with

bosses rounded to a pattern, as on Palace Gondi; on the next story is placed a kind of diamond-paneled ashlars (frustums of pyramids or wide beveled edges), and the ashlars of the third story are dressed smooth; the astragal is suppressed; the modillions of the main cornice are stilted, of simple form, and are set close together, but it must be said moreover, , that it is well proportioned in height and projection to the entire building. Dentils are not omitted on the main cornice or on the belt-courses. A graduation in expression was the purpose of the architect in the treatment of the ashlars in the various stories, even on the first model, as well as in the execution, though a somewhat different one.

According to the statement of Del Badia, the building was so far advanced, that in July, 1500, the modillions of the principal entablature were set on the half next Palace Mercato Vecchio, and this part was completed on September 15, of the same year.

Cronaca died in 1508 and Giuliano in 1516; consequently the first architect was survived about 8 years by his successor, the constructor of the much admired principla entablature.

The problem proposed was to place a stone main entablature projecting 7.26 ft. upon a wall 3.61 ft. thick, increased to 4.79 by corbelling. It was solved by treating the modillions as actual beams 9.38 ft. long, 2.08 ft. wide 1.475 high, which project 5.77 ft. from the solid face and are supported for 2.62 ft. by the bearing members (cyma, dentil band, and egg-and-dart moulding), so that strictly taken, they can be regarded as only projecting free for 3.61 ft. These stone beam consoles lie 4.94 ft. apart from centre to centre, and they are bonded with hooked anchor stones flush with the inner side of the corbelled masonry, and they there support a loading wall 4.59 ft. thick and 7.54 ft. high to the stepped top. But this loading wall further receives the load of the shed roof, which slopes downward toward the rear and is about 26.2 ft. span. Hence the stresses and loading are therefore abundantly provided for. These are opposed by the hollowed-out coffer slabs, 0.72 ft. thick, the ornamental mouldings of the planchier, 0.394 ft. thick, and the cymatium, consisting of blocks 1.345 ft. high

and 2.46 ft. deep, also hollowed-out. Including the crowning ornamental mouldings, filling slabs 0.75 ft. thick extend between the consoles. Between the coffered filling slabs, omitting the consoles but resting thereon, there are inserted headers 1.31 ft. wide, 1.15 ft. high, and 4.92 ft. long, and again upon these are laid others 1.68 ft. wide, 1.34 ft. high, and
144 5.90 ft. long, into which the intervening pieces are dovetailed. The headers between the coffers are cut out to receive the crowning members of the cornice.

The load transmitted to the consoles, which is opposed by their strength and by the loading masonry, is therefore not great. The lowest projecting member of the main cornice, the bead and astragal, is held by anchor stones 2.80 ft. high; it
145 is of slab form, rests 3.28 ft. on the masonry and projects only 0.66 ft. beyond it. It was then unnecessary to insert its rear end in a hooked ashlar. Beside three blocks 2.46 ft. thick and set on each other, cut out on two sides, are set two ashlars above each other, cut out on one side, and which grip the former. Every console is enclosed and held by this masonry of stone cramps (Fig. 138). The corncie would indeed have been held in place without this clamping; for the requirements for the goodness of the construction consist in the use of long, built-in, stone beam consoles with the considerable masonry loading and the hollowed-out construction of the projecting parts of the cornice. Only necessary was the insertion of the[74] stone beam consoles into the recessed heavy anchor stones.

Note 74. Von Stegmann and von Geymuller, in the work frequently mentioned, have for the first time fully illustrated the construction on an assured bases, but the material is made distinct and clear in neither the text nor the illustrations. The text and figures also contradict each other in some points (compare p. 7 of the text and Plate 16, where certainly the section of the cornice must be completed, and where it may also be stated, that on Palace Strozzi, we do not have to do with masonry entirely composed of ashlars in courses.

Otherwise we fully admit, that the various publications on the construction of this cornice from German and French points of view are in part entirely defective or show certain errors;

but when one sits in a glass house, one should not throw stones! -- Warth has worked out this material very clearly in "Allgemeine Baukonstruktionslehre" by G.A.Greymann, Vol. 1. p.94, Fig. 277. 6th edit. Leipzig. 1896, even if so far as it relates to the cymatium and its supporting members, this does not entirely agree with the text of p. 7 of the work referred to.

The system of the facade of the Palace is illustrated by the scheme in Fig. 139.

The columnar court by Cronaca (6 × 4 columns, the angle columns doubled in number) shows on the upper story on the two narrower sides an arrangement of piers connected by round arches, on the longer sides being blind arcades with inserted rectangular windows, over which are circular medallions in the tympanums of the arches, while horizontally roofed loggias are arranged on the two narrower sides in the highest story, their entablatures resting on stone columns of the Corinthian order. The visible framework of the roof forms the ceiling of the loggias.

The Composite capitals of the ground story have the Late Roman impost block inserted between the capital and the impost of the arch; the archivolts are subdivided in the antique manner; the crowns of the arches support flat keystones with foliage. Above the arches extend in regular antique form architrave, frieze, and cornice, and above these is arranged a special parapet to the height of the window sill, thus being an innovation in opposition to the window-sill belt elsewhere employed.

146 92. Palace Gondi.

Beautifully graduated ashlar work is shown by Palace Gondi, also built by Giuliano da Sangallo for the rich merchant Giuliano Gondi, which was begun in 1481 or 1490, but only completed by Poggi in 1874, though not in its original extent. Built in 3 stories with 15.74 ft. distance between axes, the middle story is 27.50 ft. high, ending in a heavy stone cantilever belt with dentils, the rustication of the lower story exhibits a treatment similar to that designed by Sangallo on his model for Palace Strozzi with the use of courses of unequal height, while on the middle story the surfaces of the ashlars are finely pointed and are separated from each other by rectangular

grooves. they are likewise ~~set and~~ wrought smooth in the top story, but, with fine joints and without especial emphasis thereon.(Fig. 140).

The moulded architraves of the windows are wide, the bearing arches between them are stepped, varying from those on Palace Pitti, Palace Piccardi, and Palace Strozzi, in order to make possible better fitting and better bonding with the horizontal ashlar courses. This led Giuliano to the little whim of inserting shield-shaped blocks with inclined joints between the arches (Fig. 140), in the centre of which project iron pins, whose purpose is unknown to me. When courses of unequal height were once adopted, a simpler arrangement might well be made for the joining of the straight courses with the voussoirs of the arches. In reference to proper stone-cutting, the stepped arches are to be termed an advance, but which is in this kind no invention of Giuliano.

The stories are separated by window-sill belts with dentils on the upper one and small consoles on the middle story; the main entablature is 1/24 part of the height of the building, but is too low and is not proportioned for the entire height of the building. 75

Note 75. Raschdorff gives in his work the height of the entablature as 1-17 of the height of the building, according to redtenbacher, but draws it correctly at 1-24 on Plate 80 of the same work, as von Stegmann and von Geymuller likewise do on Plate 8 (Giuliano da Sangallo) of their great work. The latter also gives to the third story the stone window mullions, transoms, and stone slabs in the tympanums, also with the crest, — a bent arm holding a knife in the fist,-- in the spandrels of the arches.

The columnar court is beautiful, with the staircase built in between the columns and open at the sides, a richly ornamented stone balustrade, decorated ends of the steps, and the small fountain. Its Corinthian capitals support the late Roman impost blocks, on which rest the arches: the crowns of the arches are adorned by a volute leaf fixed before each as a keystone. The state fireplace in the interior of the time of the erection should be mentioned.

93. Palace Guadigni.

A peculiar position among the palaces of the Early Renaissance is occupied by Palace Guadigni, for on it the fortress-like massiveness and rustication of the external walls do not appear. Not as an insolent fortress, but serene and pleasing does it appear to us, and only the ground story recalls a weak reflection of the former. The city residence of the free citizen, who has attained quiet, is here expressed to us.

Originally built for the silk merchant and manufacturer Rinieri di Bernardo di Domenico Dei in the years 1500-6, it has borne the well known name of Guadigni only since 1684. The family of Dei possessed a chapel in S. Spirito, located on the same Place, and since Cronaca was then employed in the building of this Church, the connection of his name with the Palace may well be admitted, and Cronaca may be accepted as the architect thereof, although no document has been produced, which names him as such. 76

Note 76. Burckhardt, Lübke, von Geymuller and Stegmann, strongly adhere to Cronaca as architect, after Fantozzi (Nova Guida di Firenze, 1844), and so long as nothing more definite can be presented for this assumption, we must also accept it with pleasure.

The Palace is built of Pietra bigia, has 3 stories with an open loggia above them, on the side next the Place being 7 axes with a height of story of 18.63 ft. from one window sill belt to another one, and it is crowned and protected by a cornice on rafters and projecting 7.54 ft. It shows a ground story of ashlars with high placed, rectangular windows and a great doorway on the central axis, bordered by a series of ashlars at its sides. The ashlars are coursed in blocks of unequal length and height. All have the finely dressed border of 3-8 to 5-8 inch in width, and a very regularly and finely pointed panel. A stumpy belt-course without the usual dentils terminates the story, which is repeated in the upper stories in the sace style and mouldings. The round-arched windows are flanked by a series of ashlars, whose width is 1-3 the clear span, and these follow the form of the arch, becoming wider at top, there ending in a recurved point. The wall surfaces between the win-

windows and the belts are plastered, and the plaster is ornamented by sgraffito, so that wide friezes of fruits and palm-leaves extend beneath the window-sill belts, while the other surfaces are subdivided into ashlars and only receive as an ornament a rosette in the centre of each window pier. The vertical series of ashlars at the angles are graduated upwards in width and in expression; the same is the case with those enclosing the windows. Everywhere prevails uniform and refined feeling in both general forms and details. attention is paid to the sense that requires the graduation of architectural forms upwards. (Compare Fig. 141, especially for the system of the facade).

The ground story is ornamented by the typical rings, on the angles are the wrought iron lanterns of Caparra, like those on Palace Strozzi, and on the piers in the middle and upper stories are the well known banner holders. On the upper story, the great stone shield of arms of the owner of the Palace is suspended from consoles with ribbon bands. Especially distinguished are here the angles of the vertical series of ashlars, for they are decorated between the stories by slender half-columns. The ending of the column on the angle pier of the loggia is correctly given by Raschdorff (Plate 52 of his work), but not by von Geymuller and von Stegmann (Plate 2 of their work, Cronaca).

The usual bench base extends along the two street facades; the stone columns of the loggia have Doric-like capitals with foliage on the angles; the architrave resting thereon, on which is set the entablature with rafters, is of wood like that.

94. Sienese Palaces.

In this class of the palaces of the early style, in which a subdivision of the facade is renounced, may also be named the half Gothic Palace Nerucci in Siena, Palace del Refugio there, and further Palace Piccolomini and Palace Spannochi, which accord in arrangement with the Florentine examples described.

On Palace Piccolomini, the peculiarity is to be mentioned, that it shows simple rectangular window openings in the frieze between the astragal and the antique cornice with consoles.

Palace Spannochi is built of tufa ashlars (indeed by Francesco di Giorgio, 1486-1502), and the cornice rests directly on

the uppermost story without any preparatory members, but is as a whole proportioned to the height of the building. On an egg-and-dart moulding rest the tall modillions, whose interspaces are ornamented by strongly projecting medallion heads of terra cotta. A geison with decorated fascia and a cymatium finish this interesting main cornice.

95. Palace Riccardi.

Hand in hand with the plain Florentine-Sienese palaces, that are only effective by sound alternative relations between openings and masses, by a pecliar treatment of the plain stone wall surfaces, and by their fine ending at top, proceed those, which stand in the antique Roman art; the buildings of Alberti and of Rossellino.

149 They have nothing of the dignity and earnestness of the works of a Brunellesco, Michelozzo, or Cronaca; before Alberti soared as an ideal on a chief principle of the later Renaissance, -- the graduation upwards of the orders of pilasters and of columns on the facades, which he first brought into effect on Palace Rucellai.

The members there have a refinement in relief like that of Bramante; the pilasters project but slightly from the surface of the facade: there is no graduation of the surface masonry; this is uniformly executed in all the stories in irregular courses of unequal height. The individual ashlar panels are separated from each other by sunk joints of slight depth, the ashlars of which the pilasters are constructed have dressed margins with finely pointed panels.

In my opinion, there is also here no rustication: with this pattern, smooth and uniform accenting of the surfaces, I cannot agree that the local mode of expression is here a connection of rustication with pilasters. What is here intended, also occurs on Roman buildings, without the smooth ashlars separated by grooves being baptized "rustication". Alberti bases his graduation of the facade on the orders, which he employs entirely in the antique sense: lowest the strong Doric, then omitting the Ionic, he uses the richer Corinthian in the two upper stories and a main entablature, which is a mean between that intended merely for the uppermost story, and one designed for the entire heig-

height of the building. The entablatures and pilasters indeed have no function; they are not structurally required; they merely contribute a slight ornamentation; and in this sense is the motive of the subdivision of the facade endurable.

The belt courses are arranged like those of the Gothic Palace; the larger extend across as window-sill courses, under them being a flat ornamented frieze, beneath this being the finely moulded architrave. This arrangement repeats itself in each story, and pilasters are placed between the belts. The capitals of the Tuscan order are still somewhat awkward and confused, and those of the Corinthian likewise, and the consoles of the main entablature, as well as the architrave beneath it are, — well, coarse. The windows are divided by small columns, to which corresponding pilasters ~~are~~ on the jambs; above is an architrave, on which commences the great round arch and the small arches of the semicircular windows. The arches are drawn concentrically, the now partly walled-up semicircle and the circle in the tympanum were earlier open, as the two extreme windows on the right show. The entire facade of the Palace would make a different impression, if these walled-up places were removed, which make it appear heavy and flat, since the intended proportion between openings and solid masses is wanting, -- equilibrium in the effect of contrasts is destroyed, just as at this time on Palace Pitti, among others.

The demand for the security of the occupants still makes itself felt in this building of more elegant type, for here as on Palace Guadagni, only small and high placed rectangular windows animate the wall surfaces of the ground story. The arrangement of the pilasters rises from the bench-base, which is not suppressed here, on a plinth, whose surface is constructed in the manner of opus reticulatum and subdivided by pedestals corresponding to the pilasters. The iron banner holders and the hooks for window shutters at the height of the impost are present in the upper stories, as well as the stone coat of arms with its waving bands, supported from a console, but they are not here on the angles of the building, but are placed beneath the architrave of the middle story on

the axis of a window. The system of the facade of the Palace is given in Fig. 142.

Like that last mentioned, this Palace was also called into existence by a merchant, descended from a prominent familyof dyers, who combined culture with wealth, and according to Del Badia, it was built in the time from 1446 to 1451, as taken from the tax registers. It is ascribed to Alberti and to Rossellino.

A contemporary of Vasarinames Bernardo Rossellini as the maker of the model; others desire to attribute to Rossellino the main entablature, the mouldings, and the ornamental details, leaving only an influence on the facade as due to Alberti. One might well reject Alberti (1404 - 71) on account of the Tuscan pilaster capitals and on account of the main entablature, if the Palace in Pienza were not incontestably built by Rossellino 12 years later. According to this work, I hold firmly that Alberti was the master for Palace Rucellai, even if the columns with arches in the court are opposed to that master.

The former ground plan is no longer to be recognized; but so much may be seen, that the Palace must have been extended about 4 axes.

96. Palace Piccolomini.

A contemporary of Alberti, the Florentine Bernardo Rosselini (1409-63), who became well known as architect and sculptor, and who with his brothers carried on the business of stonecutting and building, built in the years 1460-62 (others prefer 1459-63) the Palace Piccolomini in Pienza on the same system, as Alberti used 12 years earlier on Palace Rucellai in Florence.

The facade in Pienza might be termed a plagiarism, if the origin of the two palaces were entirely certain; but since the masters Alberti and Rossellino are named as originators of both, the reproach cannot be maintained.

The arrangement of the base, of pilasters, of cornices, and of windows, is the same at Pienza as in Florence; excepting that in Florence a greater surface of the wall is left between the crowns of the arches and the bottom of the architrave of

the entablature, which there contributes very much to make the facade appear more distinguished.

The treatment of the facade surfaces is the same in both places, -- ashlars with rectangular sunken joints, --; the widths of the pilasters diminish harmoniously in the three stories; but in Florence, the surfaces of all three orders are uniform-
151 ly made smooth, while in Pienza, the ashlars of the Doric pilasters have the sunken joints like the stones of the adjoining surface of the wall, and only those of the Corinthian are dressed smooth.

The friezes of the entablatures are low and plain; the main entablature with its high architrave, low frieze and modillions, very heavy geison and relatively large cyma, is too heavy for the pilasters under the upper story and too low for the entire height of the building. The lack of wall above the windows, the crown of the arch directly adjoining the architrave, strikes the eye in a very offensive way. Nothing is here to be found of the grand movement of the Florentine architecture and of its refined details of the window enclosures, or of the beautiful belt courses beneath them.

The Doric capitals lack the echinus and the Corinthian are made too low with very knobby details. The horizontal transoms in the windows are without mouldings; the upper ones rest on the imposts, or rather the centre of the arch, and they thus mar the effect of the circular form of the large and small arches.

If the building in Pienza were 12 years earlier than those in Florence, I should then be surprised by it; but since the contrary is the case, it is difficult for me to be so. I hold it to be rather an unskilful imitation, than a development of its predecessor; and if I accept Rossellino as the master of the Florentine building, then the man forgot later what he knew earlier. I rate other buildings of the master, and especially the Cathedral among them, no higher than those palaces, which exhibit no greater skill, but rather an impure groping, seeking, or a venturing upon something to which the master had not attained. And if Pope Pius esteemed the architect so greatly as to pardon his exceeding the estimated cost of the

building by 8000 to 19000 scudi in 30000, and "awarded him the first place among all architects of the century." had the man paid his entire salary and 190 golden guldens in addition, and moreover gave him a festal garment, then is the work thereby made no more beautiful or better, than it is. Praise does not beautify, even if it comes from a high source, just as little as an art work is lessened in value by the blame of the ignorant, as already stated by the emperor Marcus Aurelius.

97. Other Facades with Pilasters and Columns.

(Palace Piccolomini in Pienza ever remains a weak imitation of the distinguished Palace Rucellai in Florence! The uniform subdivision of the facade surfaces in all stories by pilasters follows in the High Renaissance the subdivision by half and quarter columns, where that by pilasters still remains, but mostly in strong relief.

The cities of Upper Italy make increased use of this, especially Venice, which in the facade of its Library of S. Mark employs the antique Roman theatre facade without substantial change (Fig. 143). But in very many cases, considering an arrangement of Alberti, to extend the pilasters through the ground story, this is rather treated as a plain ashlar surface, while the pilasters or columns only commence in the story next above it.(Compare Palace Uguccioni in Florence, Palace Canossa in Verona, Palace Mancini in Cortona, Palace Trissino in Vicenza, etc.).

The motive is enhanced by coupling the vertical members, two columns or pilasters being placed close together to decorate the pier between the windows, which then presumes a greater distance between axes.

Palace Uguccioni in Florence, built by Marotto di Zanobi-Folsi, may again be cited as the most important example of this new arrangement, and with this the likewise mentioned palaces of the masters Sanmicheli and Palladio, Palace Canossa in Verona and Palace Trissino in Vicenza (Figs. 144, 145), where it must be emphasized, that in the two palaces last named, the pilasters are set on pedestals, and that the continuation of the cap of the pedestal forms the window-sill-course.

Here occurs a new accenting of the horizontals in the facade

by the use of belts between the stories at the height of the floor beams, which must serve as the necessary base for the pedestals. On this frequently follows the special development of the window parapet according to antique models.

If the stronger accenting of the vertical elements is also then retained, when only narrow window piers exist, the problem is then solved by a triple subdivision of the pilaster, two half pilasters being joined to a whole one, as done on the uppermost story of the court facade of Palace Farnese in Rome and as shown in Fig. 199 from a shop in Rome.

98. Rhythmic Bay.

The noblest development of the subdivision of the facade is given to us by the great Buonaroti from Urbano by the transfer of the rhythmic bay in the interiors of the vaulted rooms to the external surfaces of the walls, an arrangement that presumes the maximum distance between axes, in the sense in which Bramante employed it in his work on Palace Cancellaria in Rome. We do not have to do here with coupled pilasters, but with pilasters joined in piers, attached to the window piers, resting on pedestals in the antique Roman way, and stopping the belts and the friezes beneath them in the required manner (Fig. 146),--one of the most effective and grandest motives of the new art!

154 In a noble manner has this facade motive been further dev-
155 eloped and splendidly extended by one of the most powerful masters of the later period, Michele Sanmicheli, in his Palace Bevilacqua in Verona. The Three great windows of the upper story are formed like triumphal arches and are enclosed by three-quarter columns, the spandrels of the arches are filled by figures, and the narrow spaces between the great windows and the columns, which Bramante left plain in their effect, are broken by smaller window openings, -- one of
156 the most beautiful and original examples of ostentatious facades, that the Italian Renaissance has produced, and which is worthy to be placed beside the best produced in all ages. (Fig. 147).

We will not leave the representatives of Type 1, the Florentine rusticated and pilaster facades and their developments,

without mentioning one of the most charming examples; the facade of Palace Mancini in Cortona (purporting to be by Antonio da Sangallo), its middle story adorned by pilasters, which seeks to combine the Florentine loggia with the solid stone architecture, for the master resolves the uppermost story entirely into an arrangement of piers and columns (Fig. 148).

157. 99. Examples of the Colossal Order.

As representative of Type 4, which is best treated here on account of its connection with the examples in which the orders of pilasters are arranged on the different stories, these buildings of the great Florentine, Michelangelo, may serve, the facades of Palace Senator and of Palace Conservators in Rome.

On high stories, the orders of pilasters or of columns may well be borne above each other; on low ones, they must appear paltry in comparison with their antique prototypes. Men believed themselves able to weather the difficulty by recalling the pseudoperipteral structures of the ancients, considering the facade again as a whole, omitting the graduated stories, permitting the building, like the former temple, to consist of the base, the columnar structure, and the entablature, inserting the enclosing masonry with windows and string-courses between the great vertical supports. There is indeed no question, that a greater effect was thereby produced, but at the cost of the organic, which was then completely effeced.

Sangallo (Vecchio) indeed made the earliest attempt in this form in Palace Nobili in Montepulciano, where he raised the Ionic pilasters on high pedestals and inserted between them the great round-arched window openings and the rectangular windows of the middle story (Fig. 149).

Palladio perfected this idea in the most imposing manner in his buildings in Vicenza on Palace Valmarano, represented in Figs. 150 and 151, and on the so-called Library of the old Seminary. Unfortunately, genuine materials were not always at the command of the master, for he was compelled to construct many of his massive colonnades of bricks and to coat them with stucco, which did not agree well with the bold desire.

100. Roman Type.

The first example of the Roman type, of which we have taken Palace Farnese as the greatest representative, extends back to the beginning of the Renaissance, into that period in which mediaeval and new motives occurred side by side, and which are represented on Palace de' Venezia in Rome (Figs. 152 to 154). Neither is there a graduation of the masonry upwards, nor is
158 any vertical subdivision here executed. The regular arrangement of the windows is mediaeval; also mediaeval is the massive main cornice of consoles spanned by arches and the battlements above them, as well as the tendency to continuous window-sill belts and the stone mullion and transom in the rectangular windows, while the details, the wide and beautiful architraves with the shields of arms and the inscriptions, the semicircular headed windows with and without impost caps, bear the impress of the new style.

The omission of all vertical subdivision by pilasters, columns, or vertical bands, made possible a greater freedom and variability in the arrangement of the windows and also permitted a freer movement in the shaping of the ground-plan; but the Italian mediaeval regular division by window axes yet always prevailed. The only, yet always strongly accented, verticalism in the facade in the facade is the protection of the angles of the building by ashlar courses, but the low base, the continuous window-sill belts with the friezes or astragals beneath them, or also in combination with a bold string-course between stories, the window pedestals more or less rich, the smooth ashlar, brick, or plastered surfaces of the facade walls, and a strongly dominating principal entablature, designed with reference to the entire height of the building,-- these are the characteristics, as they are harmoniously executed on Palace Farnese (brick facing), Palace Sciarra (Stucco surface), Palace Ruspoli, and Palace Capronica, all in Rome, on Palace Riccardi-Manelli in Florence (brick facing), further on Palace Pandolfini (stucco surface), Palace Bartolini, and Palace Larderel (ashlar facing) in Florence, in Piacenza on Palace Farnese, and on many others of this group, mostly on a large scale.

159 A beautiful addition to the otherwise simple system, on which our city architecture is still modeled, is executed on Palace Bartolini (now Locanda del Nord) among others in Florence, i.e., the connection of the window caps together by flat bands and the creation of deeper rectangular recesses on the window piers of the upper story, and the use of the Late Roman motive of the semicircular niche with the shell in the quarter sphere between the windows of the second story on Palace Bartolini. The horizontal bands and the vertical recesses on the building hold each other in equilibrium.

101. Venetian Type.

The regular symmetrical arrangement of the windows, the uniform development of the surfaces of the facade, where everything is repressed into a single plane, where no belt nor main cornice deviates from the straight and unbroken line, are omitted in the Venetian type and give place to a more animated form by more or less strong accenting of different portions of the building, where the problem first falls to the Renaissance, to translate the arrangement of plan, already become typical in the middle ages, and the resulting treatment of the facade from the Gothic expression of form into that of the Renaissance.
160 The skeleton with its elements remains; its finish is changed. Compare in this sense the two simple Palaces Cavalli (1400) and Grimani San Polo (1475-85), (Figs. 181, 182). The triply divided facade falls into a central portion and two side parts symmetrical with it, each with two windows separated by a wide pier. All parts are crowned by a common horizontal, rather poor cornice with a falt roof lying behind it. The central portion contains the "water-gate" on the ground level, on the right and left of this being a moderately large grated window, over these being a continuous balcony with respectively three and five columns, which does not strongly project from the plane of the facade. The three parts are separated from each other by vertical bands (pilasters). But this separation is found to be omitted again on Palace Corner-Spinelli; the triple subdivision of the facade is only and solely produced by the arrangement of the windows. The water gate with the grated windows remains in the ground story, the two Florentine

round-arched double windows are coupled together on the central axis in the scond and upper stories into a middle portion with continuous balcony, and on the right and left of this at equal distances is placed only a single round-headed double window.of similar form. The facade thus remains so quiet and dignified, the relation between openings and masses are so well weighed, that this is not found again on the extremely rich palaces on the Canal Grande.

The water gate gives place in palaces of the later and richer style to the portico of three arches, when a mezzanine story is added to the ground story, not exactly to the advantage of the good proportions of the building, for the substructure is made too high in proportion to the two principal stories. (Compare Palace Corner della Ca'grande).

The ground story on Palace Rezzonico is more happily conceived by the omission of a mezzanine beside the water gate, which has a truly noble effect with its rusticated columns and horizontal entablature and is not excelled by the even richer upper story. The two upper stories are subdivided by three-quarter columns into entirely symmetrical bays, only the angles being more strongly accented by double columns. What the original design of the ground story promises is unfortunately not retained by the upper stories; it permits the expectation of a grouping of the windows, but we find only a Florentine symmetrical subdivision with too rich details, and decoration by ornaments and figures. The high frieze of the principal entablature with its oval windows is not exactly the best arrangement for an ending.

The magnificent facade of Palace Pesaro in Venice by Longhena (1650) is in its ground story a mean between the two just mentioned, for on the right and left of the water gate are arranged two half-stories, whose total height is harmonized in a masterly way with the two upper stories, except for the coupling together of the small windows vertically.

The water gate is beautifully designed with the two great arched openings and the semicircular niche between them; the diamond paneled ashlars of the wall surfaces impart to the ground story a character of hauteur and defiance. A triple

subdivision is sought in the upper stories by the alternation of single and coupled columns, but it is not expressed with sufficient clearness. The round-arched windows between them with the massive keystones and the cupids wrought in strong relief on the spandrels of the arches and the double arrange-
/6/ ment of the small columns on the window jambs give to the architecture something inharmonious , and in spite of the too great richness, majestic repose and strength are lacking above, that are so strongly expressed in the ground story (Fig. 155). The effect of the whole is improved by the fact, that the frieze of the principal entablature is unbroken in any way, but has fixed and strongly projecting relief ornaments. Without hesitation, we must designate the Palace one of the finest works in this domain during the 17 th century in Italy.

More quiet and refined in contrast with it stands the older Palace Vendramin Calergi, built by Pietro Lombardi (1481), recalling Palace Corner Spinelli in the treatment of the windows. In my opinion, the ground story of Palace Corner Spinelli is more properly and monumentally conceived and executed. But unfortunately at the triply arched water-gate, the side arches are subdivided in the same manner as the windows in the upper story, where by three double windows is formed a central and two side divisions, each with a double window; coupled pairs of columns separate them. Everything here shows the most carefully arranged regularity! The small windows in the mezzanine of the ground story are beautifully arranged, and the principal entablature is well harmonized with the whole in form, dimensions, and projection.

Palace Manzoni in Venice of the epoch of the Lombards (1500) also deserves special mention; built but a few years earlier than Palace Calergi, retaining the Gothic design in the most refined Renaissance forms, with perhaps too slender proportions of the round-headed windows. The high frieze, decorated by candelabras, garlands, and eagles, extending beneath the windows of the middle story to the height of the balustrade of the balcony, the finely distributed incrustation with rectangular slabs and circular pieces of marble of different colors, the refined enclosures of the windows, the pilasters with

strong and perhaps too large capitals, the five-fold arcade of the central portion, and the elegant principal entablature, make it one of the most finely designed creations on the Grand Canal.

162 The great master's hand is shown by Palace Grimani, built by Sanmicheli, with its subdivision by pilasters and columns extending through all three stories, with the projecting flight of steps extending across the entire middle portion, and the base of rusticated ashlars, which rises from the water as if conscious of its purpose. The rhythm in the succession of the windows in the upper stories, -- three great round-arched windows alternating with two of rectangular form, separated from each other by three-quarter columns, -- recalls what the same master attained so splendidly in Palace Bevilacqua in Verona. What is there striven for by an over abundant wealth of form, must here yield to a more severe and colder manner.

102. Final Considerations.

The not excessive development in the height of Venetian palaces, the interesting grouping of the windows, the noble and light colored building material in its perfected technical treatment, the growth of the buildings out of the quiet surface of the water, with never an unwise economy, the refined and sometimes over rich details, beset with ornaments and figures, lighted by a bright sun and backed by a deep blue sky, the buildings here and there interrupted by a little garden with its fresh green, brilliant flowers and golden fruits, -- all these together permit the highest and most entrancing impressions of the imagination to revel among the magical palaces of the city of the lagoons, carried by recollections of great events in the history of the world, that occurred on this soil, to the famous past of the republic with the melancholy final consideration of the transitoriness of everything earthly. Saxa loquuntur (the stones speak): the stones make the fame of the ancient art of Venice known to all posterity. Where the tongues of mortals are silent, architecture speaks the words of eternity!

103. Palaces in Genoa.

"In the closely set architecture of Genoa, the proportions of the facades are generally neglected, and a pleasing ornamentation is everywhere omitted."[77]

Note 77. See Burckhardt, I. Geschichte der Renaissance in Italien. p.200. 2 d edit. Stuttgardt. 1878. (Eng. trans. in Univ. Library).

I cannot accept this statement, in view of the palaces on Via Nova and on other streets or on public places; most rather have their facades subdivided in accordance with very definite and clearly expressed principles, resulting from originality in the arrangement of the plan, that naturally is developed from local conditions, mostly required by the sites rising in terraces from the level of the sea to the tops of the hills, and the location of the streets, stepped one above another. The movement found in all recalls the Venetian type in many respects. We there saw the water-gate placed on the central axis of the building with two side windows, and in Genoa we find as a central part the vestibule, lying directly on the street and on the ground level, raised but little above the sidewalk, and which,"devoted to one of the highest problems", here enters as another element of beauty in combination with the stairway. A continuous flight of steps connects the vestibule with the higher level of the court and the staircase, thereby producing effects in lighting and picturesque views toward the interior of the building, such as scarcely occur elsewhere, are seldom equaled, and never surpassed(Fig. 156; section through such an arrangement at the University; Fig. 157, view in Palace Durazzo).

163 Characteristic again is the triple subdivision of the facades, the division into two side wings and a central part of entirely equal width, which is peculiar to the Great and Little Palaces Brignole (Durazzo-Brignole with the spirited hermes figures supporting the balcony), the University, and Palace Durazzo, among others.

But the Palace Tursi-Doria (now Municipio) is equal to the best Tuscan palace, designed with nine axes and its one-story arched porticos built at the sides, and likewise the Palace

Durazzo in its simple and grand form with arched side porticos in the upper story. The outlines and proportions of the parts of the building are here as well and earnestly conceived in reference to each other as elsewhere.

Palace Lercari must have had a charming effect in its original condition with its arcaded loggia in the upper story, where there can indeed be no suggestion of a neglect of proportions, to satisfy which more attention must be paid, than on the plain facades of mediaeval cities.

The normal arrangement of the palace of a family is that in two stories, where a mezzanine is placed over each principal story, and the principal entablature is generally executed like a balustrade or an attic.

Thus the subdivision of the facade into three equal parts, with a but slightly projecting central portion, the location
164 of the entrance portal on the middle axis of the building, the
165 arrangement of a half-story above each of the two apartment stories, the animation of the surfaces of the facades by pilasters, the decoration of these by stucco and painting, -- these are briefly stated, the characteristics of the facades of Genoese palaces, on which are always found beautiful and rich entrance portals, that repeatedly form the only expressive ornamentation of a facade.

It is frequently believed, that all money remaining to an owner for the decoration of his house was spent for an artistic portal, a handsome court, and a beautiful staircase; this is particularly true for the lofty, rented palaces in the huddle of the narrow streets of Genoa, where moreover all ornamentation of the upper part of a facade would have been foolish, which owner and architect well understood. The portals say to us: local conditions compel the omission of any endeavor for an artistic treatment of the exterior; yet we will show that under other conditions, we should have known how to do otherwise. We had knowledge, means, and artists to do so; but sound human reason forbade us to do otherwise, than we have done. In these parts of the city, the neglect of well designed proportions on the facades was certainly self-evident.

104. Palace Doria-Tursi.

The grandest representative of the Genoese palace style is the already mentioned Palace Doria-Tursi (now Palace Municipio), built in 1564 by Rocco Lugaro for Niccolo Grimaldi, Prince of Salerno, with nine axes and in two storiesand two mezzanines, of white marble, gray and reddish shell limestone. It passed in 1593 into the possession of Doria, then came into those of the Jesuits, whereby under the varied ownership it experienced many changes in the interior, especially in that of the staircase, and not always to its advantage.

The main entrance portal is especially distinguished by columns, figures, and by heraldic ornament. Above a high lower story, as for all palaces of Genoa, required by the low position of the entrance vestibule and the elevated location of the court, there rise the two upper stories, each of which is externally combined with the corresponding mezzanine into one. Pilasters of the Doric order with rusticated ashlars subdivide the middle and uppermost stories; but the shafts of the columns are here decorated by flutes instead of rustication, -- thus there is a graduation of the expression of the elements, i.e., a more ornamental treatment of them upwards.

The triply arched side porticos are 27.9 ft. high, and with their terraces, they give the building the appearance of a princely palace.

105. Palace Durazzo-Pallavicini.

The existing Palace Durazzo-Pallavicini is almost as massive and large with its simple architecture, the stuccoed surfaces of its facade, its belt-courses 3.28 ft. high, its three-arched loggia in the upper story, and it is a work of Bartolomeo Bianco (1656). Transformed internally by Tagliafico, to whom we owe the peculiarly beautiful and noble stairway with self-supporting marble steps 8.70 ft. long, as well as the connecting staircase between the vestibule and court with the preliminary arcade and the figures before the two middle columns. (Fig. 158; plan). The stairway is covered by a tunnel vault with coffers, whose two end walls are occupied by round-headed glazed windows, through which the interior is flooded with serene light. The end wall beneath one opening for light is

166 subdivided by an arrangement of Ionic columns, which opens into a rectangular recess in a wonderfully beautiful architectural design.

A technical not should be added. The two open loggias are executed without any visible tieing of the vaults, wherefore these show two parallel cracks extending on the right and left of the crown and the columns lean outwards.

106. Palace Regia Universita.

The present Palace Regia Universita was originally built from the plans of Bartolomeo Bianco as a Jesuit College in 1623 and was only transferred to its present use in 1782. This building of the Jesuits (like the Brera in Milan, which was built for the same purpose by the same society) excels all other palaces of Genoa in the grandeur of the design of the court. The porticos along the sides of the court are extended to the wall of the facade, so that the court is surrounded by porticos on three sides, in the midst of which a straight flight of 23 steps affords passage from the vestibule to the floor of the court. The balustrades of this staircase are not carried down to the first step; they already terminate on the eighth step in pedestals supporting spheres, adjacent to which great marble lions guard the entrance (Fig. 159). The monotony of the single flight is thus interrupted in the finest way by these pieces of sculpture. The court measures 42.6 × 75.5 ft., the main stairway opens at its end and is enclosed by colonnades of coupled columns, which support architrave, frieze, and cornice, on which rest the plain arches in the antique manner.

The view from the high vestibule towards the porticos 24.6 ft. high, with the forest of white marble columns and the beautiful stairway in the background, produce the highest charm. Everything breathes freedom, airiness, light, and sunshine; the breast expands more freely in this temple of knowledge than in the again fashionable, stumpy, monastic-like, porticos of modern buildings for like purposes. However nobly beautiful is the interior, just as unfortunate is the weak and meanly treated exterior.

167 In reference to the execution of the building, it is to be

stated, that the arcades around the court are all constructed without visible ties; for this reason, the columns are 4 to 6 inches out of plumb and are inclined toward the court, which Reinhardt[78] already stated earlier in the words:- "The execution of the entire building is careless and inaccurate, and the columns of the court are in great part inclined toward the court by the thrust of the vaults." The masonry is built of quarried stones, the vaults are of bricks, the ceilings of the large apartments are built of wood in the form of vaults and are plastered; the columns and the entablatures resting on them are of white marble, like the balustrades, as well as the belts, and are covered by slate slabs. The rain water is removed from the pavements of the porticos into the court by small openings in the masonry lined with lead. (Fig. 156).

Note 78. Reinhardt, p.8.

107. Palace Balbi.

On account of the peculiar design of the stairway, Palace Balbi is to be mentioned (Fig. 160; plan), which was caused by the later arrangement of Via Nuovissima, which obliquely intersects the axis of the building, and which was solved by Gregorio Rotondi in such a spirited manner. The original building had its chief entrance from the lower Via Lomellina, and after the intersection, retaining the existing one, this must have been transferred to the new street, thus producing two stairways, which resulted in the bridging over of the little court by a flight of steps, in order to be able to reach the upper story from both streets.

108. Palaces with Painted Facades and Stucco Ornaments.

As examples of painted facades may be mentioned; Palace Spinola with frescos and rich painted borders surrounding the simple stone enclosures of the windows, with reclining figures on the pediment window caps, then Palace Franzone in Albano with a painted sham architecture of doubled pilasters with figures placed before them.

Of palaces with stucco decorations, there are to be mentioned Palace Raggio with hermes-caryatids in the ground story and Palace Degli Imperiali.[79]

Note 79. A collection of Genoese palaces, villas, public

buildings and churches may be found in these works:--

Palazzi Antichi di Genova, racolti e disegnate da P. P. Rubens. Anversa. 1652.

Gauthier, M. P. Les plus beaux Edifices de la Ville de Genes et ses Environs. Paris. 1830.

Reinhardt, R. Palast-Architektur von Ober-Italien und Toscana vom 15 bis 17 te Jahrhunderte. Genua. Berlin. 1886.

168 Not to be forgotten are the numerous small private houses with graceful portals in the style of the Lombard Renaissance, with their charming little courts and stairways.

109. Palaces in Milan.

"Milan has an abundance of splendid buildings, but no peculiar type of palace;" the Roman type with or without the use of the colossal order is the one most prevalent. Nothing of the old palaces of the Early Renaissance now remains. The Medici Bank of Filarete[80] has disappeared; Palace Marliani was torn down in 1782.[81] A few private houses of that period are still preserved.

Note 80. A view of these after an old engraving is to be found in Müntz' La Renaissance en Italie et en France. p. 239. Paris. 1885. -- Pointed-arched windows in the style of those on Hospital Maggiore in Milan between Corinthian pilasters.

Note 81. The interesting project of a palace from Filarete's Milan period, a 3-story building surrounded by water and having a large central part with two angle porticos furnished with added loggias with triple arches, remained merely a project. A drawing of it is to be found in Müntz' Histoire de l' Art pendant la Renaissance. I. Italie. Les Primitifs. p.485. Paris. 1889.

And yet here are again motives, which do not reappear elsewhere and which indeed were produced on Milanese soil; they are hermes-figures and half-figures, caryatids instead of the pilaster or the three-quarter column.

The Omenoni, i.e., colossal figures on the House of the sculptor Lioni, an exhibition of eight bearded half-figures with bowed heads and folded arms, as high as the lower story of the house, are forms that we seek in vain in other cities. Six of the giants bear submissively the fate to which they

are condemned; the two on the right and left of the portal support on their backs the projecting balcony. The upper portion consists of the living story and a mezzanine, externally combined into one story, which is subdivided by Ionic half-columns corresponding to the giants on the ground story. Between the columns are arranged semicircular niches for figure ornament. the form of the strongly projecting principal entablature and of the attic is interesting.(Fig. 161).

Hermes-caryatids for subdividing the surface of a story (heads with steles diminishing downwards) are placed on Palace Marini, now Palace Municipio, built by Galeasso Alessi in 1555, on which the heads on the chief facade are forced between the consoles of the main entablature. They are not less than 21.3 ft. high and are arranged in pairs at the angles of the projection. Less expressive are those found on the piers of the upper story in the charmingly decorated court (Figs. 162, 163), where the heads have volute-bolsters, on which rests the architrave.

The principal facade towards the Place S. Fedele is erected in three stories; the ground story contains high living rooms with a mezzanine over them, like the second story, the wall surfaces being subdivided below by Doric and above by Ionic supports, while the uppermost story is subdivided by great hermes pilasters extending to the main cornice. The latter is boldly treated, is designed with reference to the entire height of the building, and is crowned by an attic.

The facade towards S. Giovanni alle Case rotte on the contrary has only three-story angle pavilions with a two-story intermediate structure. One side of the state court lies c next the street, but does not open from it, or only through the entrance doorway.

The combination of the larger living apartments with the low rooms of the intermediate story to form externally a single story was transferred from Genoa, where this arrangement is typical. How favorite these hermes-piers were may be deduced from the fact, that they were used without reflection, likewise on the great middle window of the Church della P. V.

presso S. Celso.

Hermes-like pilasters with Ionic capitals, like those so greatly loved by the German Renaissance, we find subdividing the facade of Palace dei Gieureconsulti, built(1564) by Seregni, which with its clock-tower forms the northern side of Place dei Mercanti.

Palace del Tribunali was built in 1605 and shows the unsettled Roman type, as well as Erba-Odescalchi, built by Pellegrini, with broken pediments and intermediate busts over the windows of the third story.

Palace Annoni, built by F. Ricchini in 1631, combines the principal story with the mezzanine, but is otherwise designed according to the Roman type.

The present Palace Reale was erected on the site of the old Palace of the Ruler, covers on the Cathedral Place an area 886 ft. long and averaging 394 ft. deep, and it has a masterly arranged ground plan with the principal court and eight subordinate courts, vestibules, stairways, passages, stables, halls, living rooms, palace chapel, for which was utilized the half-Romanesque Church S. Gottardo with the interesting brick tower built (1336) by Peccrari.

This Palace for residence was extended from 1335 onwards, from Assone Visconti to Napoleon I. In 1578, the Spanish governor, Guzman Ponce de Leon first marred the old building, desiring to fit it up in accordance with the taste of his period, when he had all the richly ornamented Gothic windows torn out. The emperor built additions in 1717 according to the designs of G. Barbieri from Parma. The empress Maria Theresa later called Vanvitelli to restore it. But the great architect desired to clear it away entirely and to build anew, which was rejected and a restoration was decided on with the use of the old walls. Vanvitelli declined this and recommended for this work his pupil Gaspare Piermarini di Foligno. This afterwards took another turn through the interference of Napoleon I, who entrusted the execution of his ideas to Cavalier Luigi Canonica.

The principal facade, of the Roman type with a colossal order extending through two stories, the lower built in ashlar

masonry, the great hall and the main staircase, are the work of Piermarini, while the rear facade was designed by Canonica and executed by Tazzini. Thus the work lasted until the close of the third decade of the last century.

The school of Vanvitelli likewise appears in Palace Belgioso (Villa Reale), built in 1790 by L. Pollack, which is characterized by a fine but strongly academical ground plan. The octagonal form of the gateway has its model in the Palace at Caserta.

Palace della Societa detta del Giardino was built at the end of the 16 th century, either by Pellegrini or by Seregni, according to the Roman type. Remarkable is its plan with two courts, one constructed with piers, the other with three-quarter columns.[83]

Note 83. A large number of public buildings and palaces is contained in Cassina, F. Le Fabbriche piu conspicue di Milano. Milan. 1844.

110. Palaces at Ferrara.

"The most beautiful buildings of the Dukes of the House of Este have disappeared; the castle is unequalled in picturesque and imposing appearance, but cannot be considered a palace. -- In Ferrara, as generally in the cities of the lesser princes, the private palaces of the nobility are never as important as in the former capitals of the republics. The mistrustful rule, as well as the financial oppression of the House of Este in the 15 th and 16 th centuries permitted no expression of power in architecture to appear.[84]

Note 84. See Burckhardt. 'Der Cicerone, etc. p.218. Basle. 1860.

The Palace dei Diamanti, begun (1492) for Sigismund d'Este, belongs to the most important of Ferrara. It now serves for a museum. Its peculiar marble ashlar-work with nail-head panels on the face of each stone, which gives to the building a characteristic and unquiet effect by the uniformity of treatment of the stones (similar forms on Veronese and Venetian palaces), and this is set with fine joints, the cutting at the angles being as close as if rubbed, like the edges themselves.

The ceilings in the interior are remarkable, often being very beautiful and characteristic, but have partly lost their figure sculpture decoration. The great hall with five windows still retains a coffered ceiling in the natural color of the wood, the corner hall beside it having one with paintings in bright colors and rich gilding, the "Settina Sala", a ceiling divided into octagonal and lozenge panels, which are chiefly painted green and gold, while the succeeding one is kept in white, green, and gold.

Palace Schifa-noja likewise adds a very beautiful coffered ceiling in blue and gold with a deep frieze on the wall (Fig. 184).

Palace Roverella is distinguished by an extremely graceful facade, which has over its marble portal one of the few great bay windows, that have become known to me in the Italian Renaissance.(For the reasons for arranging these in the middle ages, see p. 125, and p. 270 for the description of the bay window. German text).

The architecturally unimportant Palace Schifa-noja was built by Duke Borso in 1470 and exhibits a good portal with a coat of arms above it.-- Palace Scrofa shows a splendid court, "that displaced ten palaces". -- Palace de' Leoni has the most beautiful arabesques at a noble portal with a balcony surrounded by cupids. -- Palace Bevilacqua and Palace Zaffi have facades with open porticos on the street.-- To the 16 th and 17 th centuries belong Palace Bentivoglio and Palace Costabili, as well as the best of this period with rather severe classicism, Palace Crispo, entirely covered by grotesques and designed by Girolamo da Carpi.

As a last building of the Este should be mentioned La Palazzina, a once charming garden-house, now fallen into ruins.

111. Palaces at Padua and Vicenza.

Padua was in 1405 degraded to a Venetian provincial town, which sensibly appears in its private buildings: its palaces are therefore of little importance.

In Vicensa predominate the already mentioned palaces with a colossal order and by A. Palladio. The buildings of the city during the period of the Early Renaissance give evidence

of a well developed feeling for architecture. Among the palaces of Palladio should especially be mentioned Palace Chieraggati on account of its open portico in the lower and upper stories, spanned by architraves. Stuccoed and now painted yellow, it unfortunately loses much of its effect. For a plan, see Fig. 165; Palace del Conte Giuseppe di Porto in Vicenza.

112. Palaces at Bologna.

"For palaces of the Early Renaissance, that must here be extended beyond the first decade of the 16 th century: Bologna is one of the most important cities of Italy. But two almost constant limitations occur, which make impossible here a Florentine or Venetian development of palace architecture; bricks and the use of the ground story as a street portico. The latter use is in itself very beautiful and beneficial in summer and winter, but hinders the production of any strong and united composition; it produced almost entirely horizontal buildings, in which the relation of length to height was not considered at all, the centre was not accented, and the tower, for example, was capriciously added".[85] Yet here is also no rule without exception, not everything is of brickwork, and street porticos are not found everywhere.

Note 85. See Burckhardt. p. 207.

175 Palace del Podesta, built by Francesco Fossi di Dozza in the years 1492-4, has a two-story facade with nine axes, well considered in its proportions. The ground story indeed has an arcade, but has Corinthian columns with returned entablatures set before it, deep arched jambs with small diamond ashlars and bold ashlar projections of similar form at the angles. An united whole is certainly not created in this detached monument; its distinctly expressed endings with the massive angle piers in ashlars mentioned prevent the entertaining the possibility of any further extension of the structure, which is likewise forbidden by the course of the streets. The architect was thus admonished to count upon the given space.

The receding upper story has great round-arched windows; the wall surfaces are animated by decorated Corinthian enclosing pilasters, which support a finely divided architrave. The high frieze lying above it is ornamented by small round windows;

the main cornice is wanting and is now replaced by a plain wall with projecting rafters.

This story is built of brickwork, as afforded by the nature of the material. But just this boldly subdivided stone substructure with the motive of the engaged columns and broken entablature, in combination with the fine brick masonry of the upper story and the high main entablature with the enclosed round windows in the frieze, give to the Palace something distinctly characteristic, that is not found again, neitner in Tuscany, in Venice, nor in Rome.

But it should not be concealed, that originally this mode of construction was not planned by the earlier architects. The projecting columns were first added in the 16 th century and recall the allied design of Palace del Commune in Brescia. According to the design of 1492, piers with columns[86] wrought on them and a continuous frieze were intended, which were destroyed on rebuilding the arcades. The main cornice was never constructed, but it did not differ from other Bolognese palaces of this period. The projecting engaged columns are decorated in the Tuscan manner by iron holders with rings, one of which is shown in Fig. 166, now preserved in the Museum Civico.

Note 86. "Soretto da pilastri con colonne incastrate" in Valeri, p. 110.

Palace Bevilacqua (built 1482) lacks the arcades along the street and the use of brick on the front facade. According to Florentine style, a base course extends along the street front, which is only broken by the two entrance portals, one of which is enriched by pilasters, entablature, and a tympanum of semicircular form.

The ground story is divided into two halves by a window sill course, the horizontal effect being thereby emphasized more than is absolutely necessary, though on the other hand, the upper story has so much stronger an effect. The windows of the ground story are rectangular and are finished with caps; the windows of the upper story rest upon a continuous belt course, beneath which extends a decorated frieze and an architrave, and they are a mean between the Tuscan and the Venetian double windows of this period. Characteristic additions are to be considered the relatively large acroterias at the imposts and

the middle acroteria at the crown of the arch. The building terminates according to the Roman style with architrave, ornamented frieze and a heavy cornice with modillions, designed with reference to the entire height of the building, but like that of Palace Ricardo in Florence, turning out to be too rude. the wall surfaces are covered by the so-called diamond paneled ashlars (those on buildings of Verona and Ferrara: Casa dei Diamanti), which are graduated with too weak an expression. The high surface between the windows of the upper story and the main entablature has a grand effect, and it is as well considered as on Palace Strozzi and Palace Rucellai in Florence. The little balcony inserted over the rich portal with a graceful wrought iron railing is not most happy, but is still an interesting addition.(Fig. 187).

Of greater beauty and wonderful in its simmetry, complete in detail, is the court, entirely built of brick (excepting the columns). (Fig. 188). Now whitewashed, it originally appeared in the full color of the material, which was enhanced by paintings in bright colors. For example, the frieze above the arcades of the upper story was painted with ornaments in gray on gray upon alternately reddish-yellow and black grounds, as shown by the falling of the whitewash in some places. The costly frieze of shells and medallions of red terra cotta must also have had gilded frames and colored accessories. A charming addition is further the little running fountain in the court: on a tall square pier with volute capital sits a small lion emitting a stream of water into the hollowed Corinthian capital standing on the pavement.

The peculiarity should be mentioned, that the archivolts in the court do not directly rest on the capitals, but upon impost blocks interposed according to the Late Roman or Byzantine style. All arches and vaults have visible tie-rods.

From the second half of the 15 th century (completed 1570) comes Casa gia Bero detti "dei Carracci", that should be included in the number of palaces, but which likewise has no arcades of columns along the street. The building is entirely of brickwork from the sidewalk to the main entablature

continuous high base has a round at top; above it project from the wall consoles of brickwork without any ornament, and these are joined by semicircular tunnel vaults and show richly decorated archivolts; the facade wall rises flush with the latter with a window-sill course, from which extend semicircular Tuscan double windows with their characteristic side pilasters and wide ornamented archivolts, with acroterias at the imposts and crown. This motive, without changing the acroterias into stone, was also employed by Vittoni in the interior of his Umilta in Pistoja. The upper story is crowned by an architrave, a high frieze with circular openings and adorned by painting, succeeded by a moderately projecting modillion cornice of brickwork. It is a brick structure, heavy on the whole, but fine in detail and executed without fear of full color (Fig. 193).

Again without an arcade next the street is the Palace Fantuzzi, built during the time from 1517 to 1521, with three stories and eleven window axes, the windows with horizontal caps in the second, and with pediment caps in the third story, ending in a cornice with doubled modillions. A complete design of not bad proportions, but with an unfortunate treatment of the ashlar masonry and of the three-quarter columns subdividing it (Fig. 107).

A perfected composition in the form of an "arcaded palace" of definite length is shown by Palace Fioresi, built in 1519 by Formigine, who repeats in his arcade story the arrangement of Palace del Podesta and of Palace Municipio in Brescia,
179 with projecting three-quarter columns of the Corinthian order on high pedestals with high arcades. The upper story is likewise animated by three-quarter columns, and it is crowned by a massive antique main entablature, consisting of architrave, frieze and modillion cornice, above which rises a strongly receding attic story. The windows in the upper story are rectangular, covered by segmental caps, the wall surface being built of red bricks, left visible. Above the middle one of the five arches is awkwardly inserted a balcony, while the belt course of the ground story ends unchanged against the

side parts of the balcony balustrade and the balcony floor lies below that. The increased height of the lower story caused by the stilted arcade gives the Palace a somewhat imposing effect, which may partly be due to the fact, that the seimcircular arches between the columns are not repeated in the upper story.

Palace Bischi, built in 1545 by Agostino Bolognetto, again exhibits a closed mass of the building without street arcade and with a rude rustication on the base, portal columns like those of Ammanati in the court of Palace Pitti, with rusticated enclosures of the rectangular windows of the ground story, that are again placed very high in accordance with the Bolognese style (compare Palace Bevilacqua on page 176).

Palace Albergati, begun in 1520 by Battista da Como, but only commenced again in 1540 and 1584 and completed in 1612, is imitated from Palace Farnese in Rome. Bold asnlar projections strengthen its angles; from a very high continuous base of brickwork rise two stories, separated from each other by bold belts arranged at the height of the window sill (architrave, triglyph-frieze and string-course), which terminate with a Roman entablature with small windows in the frieze. The details have a classic feeling; the large wall surfaces are built of bricks, that were indeed originally covered by stucco.

Palace della Zecca, built by Scipione Dattari in 1580, is again a composition not injured by a street arcade. The windows are enclosed by rusticated asnlars in all the stories, the angles are strengthened by ashlars, and the surfaces of the facade are stuccoed; as a palace with five windows, it remains a somewhat dry and rude work.

Another palace without arcade is Palace del Tribunale gia Rimini di Palladio (1578) with two side wings built in 1594. The middle portion bears over a story with a colossal order an antique pediment with a coat of arms and figures.

These nine examples may show that palace architecture in Bologna did not always move within such narrow limits as might appear at the first glance.

Also the Palace built in 1491 by the family of Ghislieri,

afterwards in the possession of Malvasia and now the well known Hotel Brun-Frank, may be mentioned as a last great example of a Bolognese brick palace without arcade.

-113. Normal Bolognese palace.

In the state archives is preserved the drawing of a Bolognese palace, reproduced by Malaguzzi-Valeri(p. 153). It is a two story "arcade palace" with ten axes, opening into a street at one side and built up at the other. The ground story shows a round-arched arcade resting on columns, above this being a hor-
180 izontal belt on which rest round-arched windows without interposed small columns, but which possess the broad archivolts and the three characteristic acroterias; the window leaves are subdivide by cross pieces into small rectangles, the walls are carried up high above the windows of the upper story and terminate with a continuous belt course, over which are found semicircular windous opening beneath compartments. A tile roof of moderate height with four chimneys with pointed hoods covers the building, whose angles are strengthened by ashlars.

This scheme harmonizes in general; but I did not see that this form of cornice was most commonly constructed in Bologna, like that occurring with the aid of painting, for example, on the Tower of the Certosa near Pavia and in other places in Upper Italy.(Fig. 212).

I consider normal those cornices constructed above the upper story in the form of an architrave, a high frieze containing small windows, and a cornice with modillions, like those to be seen on Palace del Podesta, Palace Pallavicino (1497 - 1528), Palace dei Carraci (15 th century), Palace Salina-Amorini-Bolognini (1525), Palace Ghislandi, built in 1488 by Montarini, and on Palace Zucchini, built by Terrabilia in the 16 th century. These are all long facades, which may be extended as far as desired.

But among those palaces with porticos, praise should not be withheld from Palace Fava. It possesses one of the most beautifully developed brick facades with well graduated stories and an interesting court. The massive portico rests on a plinth pierced by cellar windows, the original piers of this with pilasters and columns, the not too slender proportions, the plain, earnest and broad wall surfaces with the finely

detailed and characteristic double windows, over which is the low half-story with the small semicircular windows and the effective crowning Corinthian-like main entablature, -- all these are motives, which in their combination ensure to the building its high importance. The massive ornamental consoles towards the court and composed of eight courses, which support the front wall of the upper story, are likewise interesting additions, although the ornament thereon lacks an elegant flow of lines and in its details recalls such of the late Roman imperial period.

And thus the normal Renaissance palace in Bologna should exhibit a combination of that given in the old drawing with those cornices last mentioned. The continuous series of arches in the ground story remains, over this the semicircular windows with the three acroterias, with or without interposed small columns and tympanums decorated by medallions, over the cornice with circular, square, or semicircular, windows.

114. Other Palaces in Bologna.

As a highly interesting example of the early period, that could not quite be placed as normal, is Palace Isolani (1454), built by Pagno di Fiesole. The portico has a semicircular vault and the arches rest on columns; from the window sill course rise richly decorated pointed-arched windows enclosed by pilasters, above which is a crowning architrave and a cornice with arched frieze on consoles.

Further, Palace Malaguti, built about 1496, that shows in the ground story enclosing pilasters rising from the side-
181 walk with connecting depressed arches, together with filling masonry, which is no longer original. The upper story is animated by pilasters corresponding to the lower ones; above is an architrave, the frieze with round windows, then the roof cornice, over which are battlements, but richer and more imposing than those of Palace Venezia in Rome.

The balcony with its covered hood is also remarkable.

But instead of arches on columns or piers, the horizontal architrave is also placed on columns in the corridor of the ground story, as shown by Palace Sanguinetti, gia Lambertini, inspired by Palladio and built by Bartolomeo Triachini.

(1545-1581).[88]

Note 88. *For the architectural history of this Palace and of other monuments of the Renaissance in Bologna, compare Malaguzzi, F. L'Architettura a Bologna nel Rinascimento. Rocca S. Casciano. 1899.*

As free supports of porticos, there occur in Bologna beside columns also four and eight sided piers, piers with three-quarter columns, and pilasters with half columns engaged on two sides, of which an interesting example is given by the arcade of Palace Ghislandi (Figs. 169-171).

115. Palaces in Naples.

By the calling of the Florentine master Giuliano da Majano on the part of Alfonso of Arragon, the Renaissance also took root in the south part of the peninsula. The best work created there by that master, the Summer Palace Poggio Reale, has disappeared and is only known to us by the drawings by Serlio and a ground plan in the collection of drawings in the Uffizi at Florence.

Besides Giuliano, the Neapolitan Andrea Ciccione also adopted the new architectural style, and we see another master, Gabiele d'Agnolo, working therein before the end of the 15 th century; Gianfrancesco Mormandi should further be mentioned.

Of palaces of the early period are to be cited Palace Colobrano (1466) of the Florentine type, Palace Gravina, esteemed for its fine design with massive rustication in the ground story, plain walls and Corinthian pilasters in the upper story.(Burckhardt represents this Palace as being threatened by rebuilding in 1860). Palace della Rocca by Mormandi should also be mentioned, with its massive and great entrance as the dominating motive of the building, and also the exquisite Palace Alice of the same period.

From the late period of the Renaissance is then to be cited
182 Palace Reale, built by Domenico Fontana; Neapolitan palace facades otherwise all stand much further back than similar buildings of the same epoch in Rome.

The Early Renaissance but seldom appeared in palace architecture; so much the more does the Barocco take a part, and as for its facades, "the good in them is not new, and the new is

not good."

116. Renaissance Palaces in Rome.

And what does eternal Rome offer? It created the rhythmic bay (space between window axes) and the colossal order on facades of palaces; it created the High Renaissance with the finest and noblest palaces of the world! In it and in the 16 th century was completed a new and higher aspiration of Renaissance art. The preceding period made it possible to also solve the most difficult structural problems; manual skill was made standard and all accessory arts were carried so far, the appreciation of monuments by owners and architects was developed, until every question presented could be completely answered.

Architecture had to mark progress in organic structure without falling into dryness, and attention was again directed toward "simple magnitude", and men learned to perceive that by the too numerous details created by the 15 th century, the impression of power was not enhanced, which the masters of the Early Renaissance already knew, like Brunellesco, Cronaca, and San Gallo.[89]

Note 89. Concerning the nature of the High Renaissance, Burckhardt has collected on 3 ½ pages in his "Cicerone" (Edition 1860, p. 299-302) everything, that can be said for understanding it. His words sound like a revelation; they should be read again and again and be laid to heart, like the contents of his entire book; for the man is not yet born, who does this better than our master of Basle. -- "Caviare for the multitude" said Gottfried Semper once, -- but a heart-refreshing food for architects, and so will it become.

Among the palaces of importance in the Early Renaissance in Rome, there is to be named in the first rank the previously mentioned Palace di Venezia, built by Giuliano da Majano, with the included Church S. Marco and its beautiful portico. With a front of 420 ft. and 22.95 ft. axial distance of the windows, the building rises to a height of 85.3 ft. to the top of the battlements and in three stories. Unfortunately, the architect was here unable to use ashlar masonry; but as he executed it, it is effective by its great dimensions, the weight of its

walls and of its main entablature, crowned by battlements, which measures 14.75 ft. from the lower moulding to the top edge with a projection of 2.46 ft. The entablature is designed in height with reference to the total height of the building.

No subdivision animates the wall surfaces; no ornament disturbs the austere and grand simplicity of the main facade; only at the windows of the principal story, which begin on a continuous belt 36.1 ft. above the sidewalk, and which still exhibit the mediaeval mullion and transom, do we see on the lintel a small papal shield of arms with tiara and keys, and on the frieze the inscription regularly repeated at each window, "Paulus Venetus Papa Secundus", and the antique eggs-and-darts on the ovolo moulding of the cap. But the climax of the finest Early Renaissance decoration is formed by the noble portal 29.5 ft. high and adorned by columns and pediment, which is not placed exactly at the middle of the building.

The great court with piers and engaged columns remained unfinished, which repeated the motive of the Coliceum, while the small court with octagonal piers in the ground story and Ionic columns in the upper story was completed. The Gothic in Tuscany had already employed undiminished octagonal piers as free supports, when the supply of antique columns drew near to its end.

163 Not quite so great in its masses as the preceding is the Palace della Cancellaria, the perfected masterpiece of the great Bramante (1444-1514), the elevated ode of the High Renaissance, in which is embodied everything that we have stated to be a criterion for this epoch, where the Rhythmic spaces between window axes and the preparation for the colossal order was so magnificently expressed on a facade for the first time.

With a facade 300 ft. long, 19.3 ft. between window axes, and a height of 82. ft. for the building, the structure is already made effective by these dimensions alone. The stories are already graduated in height and in expression, and it may perhaps only be stated concerning these, that the principal entablature is merely designed to suit the upper story and

d not for the entire height of the building.
The details are of exquisite elegance and beauty, that must ve had an overpowering effect with the gleam of the white rble at the windows, before it received the existing patina.
Just as wonderful in proportions and incomparably beautiful details is the court, 65.6 ft. wide, with a length of 108.2 . and a height of 77. ft. The height of the porticos diminh upwards and above them rise the enclosing walls of the upr story and roof, subdivided by simple Corinthian pilasters, d animated by two ranges of small windows, one above the other.
The main entablature in the court has the form loved by Brante with plain modilllions between architrave and cornice, d is on the whole an effective ending, particularly with the rge openings in the two lower stories. Perfected in its prortions is likewise here the detail of the cornice, of the capals, and of the coursed bands of the piers.
The travertine ashlars were taken from the Colosseum in Rome, d the antique columns of the Basilica of S. Lorenzo in Damaso, ll for the inspiration for the monuments of antiquity, which e master aided in his way to reanimate, but without restoring em!
Belonging to the same era as the great model and of almost eal importance with the Cancellaria is Palace Giraud, 139 ft. ng and 68.9 ft. high, with 7 window axes and 18. ft. between em. Its details are less finely conceived, and the middle ory appears to be too little emphasized, since that is omitd on it, which so effectively participates on the Cancellar; the extension of the window sills down to the string-course the story by the arrangement of window balustrades.

117. Palace Vatican.

To Bramante likewise fell the grand problem of the enlargement the Palace Vatican (Fig. 172). Besides the beautiful Corte S. Damaso with the Loggias of Raphael, there was especially e great rear court with the Giardino della Pigna, on which ould be impressed the stamp of the grand and the novel.
Near the Cathedral of S. Peter had been built the Borgia Aptments[90], the Sistine Chapel by Nicholas V, and about 1100 . from them had already been erected by Innocent VIII the Ca-

Casino Belvedere, from the plans of Antonio Pollajuolo, when Bramante took up the problem. To connect the latter with the former existing buildings by porticos enclosing a court 1004 ft. long and 246 ft. wide was his idea, which was executed,
184 so far as concerns the connecting porticos. Connected with
185 these was the already mentioned triangular court of S. Damaso, designed with beautiful arcades and open loggias in the upper story, but only built after the death of the master.

Note 90. Ehrle, F. and Stevenson, E. Gli Affuschi del Pinturiccio nell' Appartimento Borgia del Palazzo Apostolico Vaticano. Rome. 1897. -- Plan. Capo primo. p. 10.

The low-lying court of the Belvedere with the segmental ending of one of its ends should be separated by a stage with interposed broad staircases and a space of garden from the higher Giardino della Fontana di Papa Giulio III, in which design two staircases of two flights each with broad steps must form the transition. The grand motive of the niche at the other end must form the termination of the plan.together with the corridors on both sides connecting the Borgia apartments with the residence of Paul IV and the Villa of Innocent VIII. This is to be recognized on an etching of the year 1565(representing a tournament in that court), and which Simil[92] gives in his restoration of Bramante's court[93], corresponding nearly to the glowing words in Burckhardt's "Cicerone"[94] concerning the intended plan: "conceive the transverse wing containing the Vatican Library and the Bracchio Nuovo to be removed, in their place being colossal doubled ramps ascending, leading from the lower court into that termed Giardino: replace the side galleries, that only exist in a mongrel scale, transformation, and partly walled up, by those grand forms of unbroken arched porticos and wall surfaces, conceived therefor by Bramante, and this would produce a whole, unequalled on earth. The brickwork with inconspicuous belts and pilasters, that Bramante partly employed and partly desired to use, may easily be surpassed in splendor and effect of details; in its entirety, it was conceived with almost perfected beauty. It is further terminated by a main form, in whose imposing presence the entire middle structure of the later palaces

would have appeared mean and contracted, so great and rich would it have been. We mean that colossal niche with semi-dome, above which extends a semicircular colonnade with a temple-like pediment façade. It is actually only a terminal decoration; but it might be a most effective entrance to a new building.[95]

Note 92. See his Work.

Note 93. Compare plates 1, 2, of Cour du Belvedere. 1503-90.

Note 94. Edition of 1860, p. 306.

Note 95. On this occasion, note the Roman use of great niches with semi-domes on facades, on of which in Rome, for example, served as the imperial box at the Circus. It is again found on the existing facade of the Baths of Diocletian, etc.; then in the Christian period on the Palace of Theoderic in Ravenna, as a reminiscence on the portals of S. Marco in Venice; in frequent and truly colossal use on the buildings of Islam, especially in the East Indies; lastly with noble effect by Bramante elevated to be the principal motive of the Giardina della Pigna in the Vatican. (See Burckhardt, J. Der Cicerone, etc. Note on p. 56. Basle. 1860.).

A general representation of the plan of the Vatican is given in the magnificent work on the frescos of Pinturiccio in the Borgia Apartments (p. 10), which we give in Fig. 172. Yet it is also stated by the author; (see original text for the Italian quotation). We must differ from this gift in view of the work in question(Compare p. 9 of the same work).

Of technical importance is still the beautiful and gently ascending winding ramp without steps by Bramante in the existing square tower on the Belvedere, whose internal edge is support-
186 ed by Doric, Ionic, and Corinthian columns, eight of each, where triangular bolsters are inserted between the inclined edges shaped like architraves and the capitals of the columns for receiving and supporting the former, -- a masterpiece of a convenient staircase lying in a circular interior 30 ft. in diameter with a clear height of 13.05 ft. between the edges.

The following notes on the origin of the different parts of the monument may serve for conveniently dating them.

Nicholas V (1450) decided to make Palace Vatican the largest

palace in the world, but only a small portion was completed at his death.

Sixtus IV built the Sistine Chapel in 1473.

Innocent VIII built the Casino Belvedere in 1490, which Bramante under Julius II joined to the Palace by a great court, including the Loggias and the court of S. Damasus.

Paul III built the Library (1585-90), which separated into two parts the great court created by Bramante; into the Cortile Belvedere and the Giardino della Pigna.

Urban VIII (1623-44) added the Scala Regia (Fig. 173) after the designs of Bernini.

Pius VI (1775-95) built the Sala a Croce Greca, the Sala Rotunda, and the Sala della Muse.

Pius VII (1800-20) had the Braccio Nuovo erected.

Pius IX (1846-78) enclosed the fourth side of the court of S. Damasus.

The Palace covers an area of about 609,000 sq. ft., of which about 277,000 sq. ft. fall to the 20 courts, while the number of the halls, chapels, and rooms equals about 1000.

118. Palaces Capitoline.

The second great part is played by the Capitoline buildings of Michaelangelo, even in their present arrangement and shape. Burckhardt believes, that as they now are, they did not originate from a single idea, but that for the lack of anything better, they were rather gradually produced by a varying use of the designs of Michelangelo. This master at least himself added (1538) the broad flight of steps, so essential for the effect of the whole; to him likewise belongs the architecture of Palace Senator with two great flights of steps in two branches, "which with fountains and the two river gods compose a truly unique whole in sculpture and architecture," The colossal order on the facade toward the square, above a high ashlar story, and the bold crowning cornice with the attic story adorned by figures, together with the staircases of the Palace, compose one of the most impressive works of the kind.

Its erection was superintended in 1592 by Girolamo Rainaldi.

187 The two Palaces of the Conservators were of peculiar design, harmonized with Palace Senator in correct proportions, and

they were arranged to diverge from the ascending starcase; they were detailed in the taste of their epoch, and were certainly executed from the plans of Buonarotti, even if they are much later. Even their oblique position with reference to Palace Senator must result from its design(Fig.174, plan). The space opens as at S. Peter's, leaving a greater width at the rear. According to modern theatrical rules, the reverse would be more correct, as expressed in the Scala Regia in Palace Vatican, if an effect of greater depth had been desired. Optical reasons appear to have had as little influence here as at S. Peter's, the adjacent buildings, their location and extent, decided the matter both here and there! The Palace Conservators on the right was already founded about 1450 by Nicholas V, but was rebuilt in 1564-8 by Boccapaduli and de Cavalieri after the plans of Michelangelo. The so-called Mueeum Capitoline in the building on the left was added under Innocent X.

The effect of the colossal order is interesting in connection with the entablature of the second story, resting on columns and the rich rectangular windows,covered by pediments and decorated by shells. The pilasters stand on pedestals, project strongly, and are accompanied by smooth vertical bands, that are again connected by a head-band beneath the great architrave. The avoidance of an arcade in the lower story and the introduction of the architrave on Ionic-like columns between the great pilasters gives a peculiarly novel effect to the facades. The principal entablature and attic story are proportioned in height and projection to the colossal order, and they are consequently designed with reference to the entire height of the building. It should be mentioned as technically remarkable, that the architrave resting on the Ionic columns is broken in several places, certainly on account of the great and unequal pressures on its ends.

119. Palace Farnese.

A monument that became typical of the succeeding period is Palace Farnese (Fig. 175). Cardinal Farnese became Pope under the name of Paul III, and about 1530, he desired to have his residence on the Campo di Fiore restored by Antonio da Sangallo. The windows of the ground story and some halls

next the court were executed in 1534, when Alexander Farnese was chosen Pope. Among the changes produced by the change of title, the building was carried to the height of the belt, and in spite of the fact that Sangallo had built everything
188 so far according to his own drawings, the cardinal had become Pope, and he opened to the world a competition for the treatment of the principal story of his palace. A similar severe stroke or stab in the heart of the artist here fell on Sangallo, as on the great Brunellesco before, when as a reward and as evidence of confidence on account of the completion of the dome, a competition for the lantern was opened! But to poor Sangallo was reserved the liberty to complete the building under the direction of another! In the competition participated Perin del Vaga, Fra Sebastiano del Piombo, Michelangelo, and Vasari. Michelangelo was very dignified in this matter, did not deliver his design in person, like the others, but sent it by Vasari, excusing himself by illness.

The Pope praised everything, but he gave preference to the work of Michelangelo and affronted the aged Sangallo by placing a certain Melighino, an obsequious creature, who had scarcely a conception of drawing and had not correctly understood his business as superintendent of construction at S. Peter's, on the same plane as the other competitors and by honoring him accordingly.

This occurred about 1544-5, shortly before the death of Sangallo, who always yet retained the hope, that the Pope would change his intention and would leave the completion to him, according to his own designs. But he received the definite command to finally proceed in accordance with the decision of the Pope, and he therefore prepared a wooden model in full size of execution, which was placed on the building. The Pope and all Rome viewed this, there was a general agreement, whereupon Michelangelo was entrusted with the execution.

After the death of Sangallo, there still remained to be finished by the later architects:--

1. The raising of the entire principal story.
189 2. The completion of the second story next the court.
3. The erection of the entire third story.

4. The construction of the rear facade from the mid-height of the ground story, and the entire central portion from the level of the pavement.

5. The execution of the entire internal decoration.

Paul III desired to entrust the execution of his palace to Michelangelo, who excused himself on account of his age of 71 years and that he knew too little about architecture. Vignola appears to have then assumed the construction from 1547 without important assistance and without supervision by the aged master; yet the latter deserves a share of fame for the treatment[97] of the wonderful principal entablature by his details. After the death of the master (1504), he certainly remained alone, and 16 years after the death of **Vignola**, Giacomo della Porta constructed the upper story, as confirmed by an inscription (1589). He likewise completed the rear facade about the same time.

Note 97. Compare Letarouilly, p. 264 of the text.

More than half a century was occupied by the work on this building, planned as a unity, to which a man of great talent like Sangallo devoted 16 years of his life, but who had to contend with another for place, even if that other were an artist of higher gifts; but he was spared from seeing what the latter made of his design, in which caprice and discord in some parts replaced unity and harmony!

After the dying-out of the male line, the Palace fell to Parma in 1731 and later became the property of the King of Naples; he rented it in 1874 to the French government, which installed there its embassy and its Archaelogical Institute. The ashlars on the building partly came from the Colosseum and the Theatre of Marcellus. Michelangelo once intended to arrange a second court next the Tiber and to join this with the Farnesina by a bridge.

Ever beautiful and a model for all later Roman palaces remains the three-aisled columnar hall of the vestibule (Fig. 175), the first convenient main staircase, and the long hall (gallery) in the second story, which the Carraci and their pupils adorned at the beginning of the 17 th century with exquisite frescoes of mythological character.

Two fountains by Vignola on the Place before the Palace are still to be mentioned, together with the polished gray granite tubs 18.85 ft. long from the Baths of Caracalla. What always charm us on the main facade next the Place are the dignity, the massiveness of the masses of the building, and the grand proportions of the whole, the strength, and the taste in details! It served as a model for many buildings; none of those taking it for a pattern have excelled it!

The front facade exhibits breaks of the masonry in the upper parts, which permit faults in construction to be assumed, that are indeed less to be ascribed to the skilful constructor Sangallo, than to Michelangelo and his pupils, who perhaps omitted to join the walls of the front facade with the court facade by ties, or a layer of beams. The masonry of the facade is executed with well shaped bricks, which have never been coated with stucco in the upper stories.

190 Like Palaces Pitti, Strozzi, Rucellai, and Cancellaria, Palace Farnese remains a landmark in the history of Italian palaces, the later phase of the Renaissance.

120. Some other Roman Palaces.

As another work of the younger Sangallo is to be mentioned Palace Sacchetti, probably built by him for his own residence. "Before all buildings of that time, perhaps the one, that with large dimensions and a certain luxury, is the least peculiar." Purchased after the death of the artist by Cardinal Giovanni Pucci di Montepulciano, he had the structure completed and enlarged by Nanni Bigio, and only later did it come into the possession of the Sacchetti. Executed in visible brick masonry, which was to be plastered, only the bands, the main entablature, the entrance doorway and the window enclosures are of travertine. Door and windows are spanned by lintels; the ground story is high and is fitted with large windows; the second story is a residence story forming a whole together with the mezzanine, over it being again an attic story with a kind of antique cornice with consoles, somewhat too small for the height of the building.

Palace Spada is interesting for the ornamentation of its wall surfaces and shows a regular plan with the entrance into an

inner court surrounded by porticos on but three sides and a perspectively arranged portico in a second court. As at the Scala Regia in the Vatican, the dimensions and distances between the columns diminish towards the rear. The attempt is likewise made to have the stairs in a single flight appear more important than they really are.

The facade has 9 window axes and a high ashlar substructure, above which is a principal story and a mezzanine, combined into one by a band, over these being another high story with a crowning cornice with consoles like the antique. The stone architecture of the facade is severe; but it receives a more pleasing appearance from stucco ornaments, with which the surfaces of the walls of the upper story are covered. Garlands of fruits, medallions, chimeras, figures reclining on the window pediments, tablets with inscriptions, candelabra, and shields of arms alternate with each other. The court facades are treated like the street facades; but beneath the window sill course there occur figure friezes, semicircular niches with figures, together with naked male figures as supporters of the shields of arms on the window piers of the second story (See Fig. 49).

This Palace was built in the time of Paul III by Cardinal Capo di Ferro, ostensibly by Giulio Mazzoni, a pupil of Daniele da Votterra; Vasari praises his merit as a decorator. The Palace later passed to Cardinal Spada, who had it restored in 1632 by Borromini, who added the perspective colonnade along the axis of the second court, which actually has a very remarkable effect, so long as one does not pass through it. Letarouilly (p. 529) calls this design a boyish sport, unworthy of true art. It is assumed that this design of Borromini inspired Bernini for his Scala Regia, but this is not conclusive.

Particularly on account of their ground plans on irregular sites are to be mentioned the two adjoining Palaces **P. Massimi**
191 **and** A. Massimi, located on a formerly narrow and crooked street, now transformed into a wide one by the so-called Hausmannization of the city of Rome, whereby the original effect of the palaces has been much injured, especially in reference to their magnitude and the effect of their details.

The original building (1455) contained a printing-house; it was destroyed by fire at the taking of Rome by the Constable of Bourbon and was later rebuilt from the plans of Baldassare Peruzzi (1532), who died in 1536 in partial poverty. He had learned in Siena how to make the best of small means, and in the plans for the residences for the two brothers, he strove in the most surprising way for the complete utilization of the ground area, without offending the principles of beauty and
192 suitability. Not easily could such a difficult problem be solved otherwise with so much skill, and not during the rule of any other period of the style; for only the Renaissance was in condition to lend to a building programme of this kind a corresponding expression (Fig. 176).

The Palace of Pietro has a vestibule adorned by columns; that of Angelo remained plain. Built of travertine in the lower story, the most common material was employed in the upper stories, brickwork covered by plastering and stucco, and only the two columns of the loggia are of marble. Elegance and refined feeling prevail in the details and in all parts of the structure and may atone for the lack of solodity in the decorations, and Peruzzi is to be given great credit, that knowing the perishable nature of his materials, he still avoided no expenditure of time or ability in giving his best work.

The loggia already mentioned confirms us in this opinion in particular; its ceiling is entirely constructed of oak, is painted white and is ornamented by attached gilded ornaments, while the pavement is covered by white and red clay tiles. The colonnades in the ground story stand on a base only a few steps high, and on the right and left of them are arranged pilasters with similar continuous and unbroken cornices above them. Above this is built the principal story with rectangular windows, broken pedestal courses and caps with consoles; then follow two mezzanine stories with oblong rectangular windows and the
193 crowning entablature. No other belts subdivide the facade in its haight, and the surfaces of the façades are only animated by a uniform treatment of the ashlars.[100]

Note 100. Letarouilly devotes to this Palace alone 19 plates (290-298) of his great work on account of the beautiful details

of the building and the variety of views resulting from the interesting solution of the ground plan.

The Palace A. Massimi is entirely plain on its exterior and merely the court with its arcades in the lower story and its horizontally covered loggias in the second story affords any architectural interest, which is not small.

As further examples should be mentioned Palace Maccarani built by Giulio Romano and Palace Vidoni by Raphael.

121. Barocco Palaces in Rome.

Most of the Barocco palaces were "built as great quarters for the high nobility and the upper and lower servants." They base their entire pride on grand and multiplied stairway designs and on state courts with rich views and outlooks on the gardens.

The best facades among them are shown by Palace Sciarra by Flaminio Ponzio, Palace Barberini by Maderna and Bernini, Palace Quirinal by Ponzio, and Palace Lateran by Domenico Fontana; also Palace Borghese by Martino Lunghi the Elder, with the grand court with arcades on coupled columns (Fig. 177), and Palace Mattei by Madama.

Palace Barberini, as well as Palace Borghese, need a few words yet. On account of its free location in a garden, the former has an unlimited treatment of the ground plan with wings projecting forwards. The enclosed court is wanting in this Palace; in its place is a grand vestibule in two stories furnished with an exedra, in which two great staircases with separate inferior stairways provide access to the upper stories. The adjoining gardens are vast, well subdivided, and are supplied abundantly with water. The show piece in them is composed of the great fountain with the colossal statue of Apollo and a magnificent pine in the background, a picture drawn by every youthful artist visiting Rome previous to forty years since (Fig. 178).

194 About 1624 and shortly after the time when Urban VIII succeeded to the pontificate, Cardinal Camerlengo Francesco Barberini, nephew of the Pope, commenced the building, which was completed in 1630. Carlo Maderna, Francesco Borromini, and Luigi Bernini supervised the work. The eldest, Maderna, indeed

prepared the first plans, but scarcely took part in their execution. For the two rivals Borromini and Bernini shared in this. The former was a pupil and relative of Maderna; but the Pope favored the latter, who at first wished the two/ to work together, but soon saw that he had miscalculated to his injury.

Therefore as a result, he assigned to each his own sphere of work, so that Borromini received the vestibule, the ramp, and the rear facade; the chief facade with the projecting w wings and the side facades, thus being the larger half, was assigned to Bernini. In the construction of the two principal stairways, the oval staircase was awarded to Borromini and the larger straight one to Bernini.

The model of Bramante in the Belvedere in the Vatican led the later architects to allied solutions.

Forty years after Bramante's precedent, Vignola built the circular winding stairway supported by columns in the Palace at Caprarola, which had a diameter of 31.9 ft., while Bramante only made his 29.2 ft. In the year 1626, Borromini erected his own with an elliptical plan of the interior of the stairway, the larger axis being 30.2 ft. and the smaller 24.6 ft., and finally Ponzio came with a likewise elliptical staircase in Palace Borghese 26.3 ft. by 23.0 ft.

The patronage enjoyed by Bernini, combined with his successes, bore the blame for Borromini's tragical end, who killed himself by a sword thrust. Envy between artists and a too acute feeling of honor at all times never bear good fruit!

For Palace Borghese it may be added, that on account of its peculiar ground plan, it was popularly called the Clavicembalo di Borghese. It was begun (1590) by the Spanish Cardinal Dezza according to the designs of the elder Martino Lunghi, then purchased by Cardinal Borghese, who ascended the papal throne as Paul V, by whose command Flaminio Ponzio extended the building to the Ripetta, while Carln Rinaldi added the garden and adorned it with three eccentric wall-fountains.

From Ponzio came the peculiar design of the doorways in 10 successive rooms, which makes possible a perspective of the richest kind in spite of the broken facade ending with a

view out on the mountains and a fountain built against a neighboring house beyond the public street. The great and beautiful court with double columns and the view towards the garden will remain an architectural picture of grand effect.(Fig. 177).[101]

Note 101. The Renaissance buildings/ in Rome are contained in Letarouilly, P. Edifices de Rome Moderne, etc. Paris. 1860.

122. Sicilian Palaces.

The palaces in the three principal cities of Sicily, Palermo, Catania, and Messina, almost entirely belong to the later phase of the Italian Renaissance, and the facades scarcely offer anything new. The plans show enclosed courts with and without porticos on columns or piers.

195 In Messina is to be mentioned Palace Avarna, in Palermo Palaces del Monte, de Cuto, Constantine, Comitino, Cattolica, Gerace, and others. Information concerning them is given by the work mentioned below with its carefully executed drawings.[102]

Note 102. Hittorf & Zanthe. Architecture Moderne de la Sicile. Paris. 1835.

Chapter 12. Villas.

"While every other possession causes toil and danger, fear and repentance, the Villa yields great and honorable enjoyment; the Villa remains there ever true and friendly; dwell in it at the right time and with love, then will it not only satisfy you, but it will add return to returns. In the spring, it makes you joyful by the green of the trees and the song of the birds; in harvest, it yields for you fruit a hundred fold for slight labor; no melancholy can enter it during the entire year. It is the gathering place of good and honorable men; nothing secret or deceptive occurs there; all see everything; here are no judge and witnesses needed; for all are peaceful and good to each other. Hasten thither to flee from the pride of the rich and the infamy of the bad! Blessed life in the Villa, unknown good fortune!"

(From L.B.Alberti's Trattato del Governo della Famiglia).

123. Country House and Summer House.

Just as in palace architecture did Florence precede in villa architecture the remainder of Italy. There first again awoke

the love of the cultured for rural life, an inheritance from the antique period, already before the middle of the 14 th century, while in the North the nobles still dwelt in the mountain castles, the higher orders of monks in their walled monasteries, and the rich citizens in the city for the entire year.

"Around Florence lie many villas in the crystal clear air, in the serene country with a splendid outlook; there is no fog, no destroying wind. Everything is good, as well as the pure and healthy water, and many of the numberless buildings are to be regarded as princely palaces, splendid and costly."

Men distinguished the country house for longer stay and for agriculture, where the estate must supply everything, and what one could not himself consume was sent to the market; it was of one story and of simple construction. Then the summer house, the suburban villa, located near the city or in the suburb, serving for transient or very brief occupancy. It must make a more cheerful and attractive impression, for which more stress was placed on its art forms and a site on a slope was preferred. The extravagant and capricious were permissible for this species of residence; much might be accepted in the country, that would not be allowed in noble and city life.[108]

Note 108. Our recent architecture is less scrupulous in this.

Villas with external porticos were regarded as more beautiful than those with enclosed facades, and towers were added with favor as a relic of castle architecture. Symmetry was abandoned in them, "where otherwise the Renaissance never counted on the unsymmetrical as a picturesque element, and only so much of this was used as might be unavoidable." And how much better is
190 it to proceed from the natural requirements, than by the modern mania at the cost of meaning and understanding, as well as the logical development of a ground plan and of sound construction, wishing to secure the picturesque at and cost? Much that we wonder at today in old buildings as "picturesque" was produced by additions and was not intended by the first architect; the ancients then made a virtue of necessity, and we create without virtue merely a necessity!

Greater importance was given to the problem by the erection of the building in two stories, which required a larger stair-

197 stairway; the service was then placed in the cellar story and the stores in a "hidden upper story with dormer windousa"

Serlio's projects for villas mostly show isolated separate rooms, only accessible from a central hall. Palladio and Scamozzi also adhered to this arrangement of a central hall, frequently indicated externally by a dome and lighted by a skylight. If the hall was made oblong, then a sideboard and a fireplace were opposite each other at the ends.

124. Arrangement of the Country House.

The farmhouse idea could be entirely omitted in the country house, when it served for permanent occupation by the landlord, who had become a noble or citizen, and who had no city property; but it might also be chiefly arranged for the manager, with the reservation of a few rooms to be kept always ready for the owner during his possible visits, which then received better furnishings and a preferable location, or if in very small dimensions, these country houses merely served for the tenant or peasant inf the form of plain, grouped structures of usually picturesque effect. The special nature of the site, the particular requirements for the position of certain parts of the building, the heights fixed for them, the arrangements of openings for light, doorways and gateways, as well as that of the space required, etc., naturally produced here a certain variation in the forms of the exterior.

According to the nature of the ground and the climatic conditions of a province, these villas, vignas or tenutes bore their special stamp; they are differently formed on the slopes of the Alps, than in the valleys of the Arno or Tiber, or on the Gulf of Naples.

Evidence of this is given by the Country House near Bellinzona
198 and a Tenuta outside Porta Angelica near Rome. There is the high German tiled roof over a massive stone structure in several stories, and here is the flat roof with an open portico, tower, and a main building in two stories.(Figs. 179,180).

The construction of an open loggia on the roof is again common to the country houses on the slopes of the valley of the Arno and that of Upper Italy; excepting that it is there of greater extent and less enclosed.(Fig. 181).

By location, picturesque grouping, interesting outlines, and simple architectural forms, is the moderately large Country House near S. Gervasio one of those typically beautiful ones, such as may still be seen by hundreds outside the gates of the larger Italian cities. The groups of trees surrounding the building contributed no little to the effect, as well as the fortunately not too conventional arrangement of the gardens, whose charm is ever enhanced by small fountains.

125. Suburban Villa with Park and Gardens.

The villas of the great and the wealthy of that time are not villas in our sense, but they are garden palaces in magnificent parks and lawns adorned by art-works, intersected by streams and cascades, which alternate with small ponds, fish basins, and grottos, rich beds of lowers, fountains of marble and of bronze, comfortable seats among them, with shady walks; well-chosen points of view succeeding in the most beautiful variety. The interiors of the buildings are furnished with every city comfort and convenience, and they are intended for an existencedifferering from that in the city only by location and the greater freedom of the life.

126. Early Renaissance Villas.

The best of the Florentine villas of the Early Renaissance, according to Burckhardt, were voluntarily destroyed in 1529 before the Spanish siege, and whatever otherwise remains from the 15 th century has been rebuilt and extended, and no longer shows its original form.

127. Villa Careggi.

As a first example may be mentioned Villa Careggi, built by Michelozzo, according to Vasari's statements. Master Lorenzo must have been the executive architect. The Composite capitals indicate in the court the year 1430; on the great fireplace in the upper story is the date 1462. The buiding was destroyed by fire in 1530, but it was soon restored; sold in 1779, after various changes of ownership, it came into the hands of Segre, member of parliament in Rome. The exterior is chiefly characterized by a defensive gallery with battlements, which gives the building more the appearance of a mediaeval fortress. The stone-cutting is limited to the most modest

degree; the surfaces of the walls are stuccoed and merely the angles are strengthened by ashlars.

The Villa is entered from the garden, first passing into an irregular court with porticos on two sides, from which a plain straight staircase covered by a tunnel vault leads to the second story, which in addition to a number of rooms contains two halls, one of which still has the great fireplace mentioned and its old wooden ceiling. The ground plan is irregular, with two projecting narrow wings, which terminate in the ground story in triple-arched vaulted garden porticos, over which is one of the famous loggias, open on three sides and supported by Ionic columns, in which Lorenzo the Magnificent held his academic sittings. The ceiling of this loggia was painted by Poccetti or in his manner with grotesque ornaments in the most graceful way; the wooden architraves on which the roof rests are supported by 18 elegant Ionic columns, and in spite of the per-
199 istylar arrangement of the columns, all their capitals have the surfaces of their volutes parallel to each other. Special angle capitals thereby were indeed unnecessary; but they do not therefore appear more beautiful.[104]

Note 104. A misunderstanding is to be cleared up concerning the Villa mentioned; in the work "Palastarchitektur von Oberitalien und Toscana vom XV bis XVII Jahrhundert (Toscana) by J. C. Raschdorff (Berlin. 1888), there is shown on Plate 61 a "Villa Careggi" with the subscript "Architect unknown". It is a picturesque and very near structure 90.2 by 48.6 ft. in dimensions, which contains 4 rooms and an open loggia in the ground story. A text for this place is given on page 18, which evidently does not fit the illustration, but rather the true Villa Careggi shown by me.

For in Raschdorff is stated with a reference to A. von Reumont, "the Villa has prominent battlements and an inner square court", of all which nothing is to be seen on Plate 61. Likewise the unknown architect of the plate is changed in the text into the well known Michelozzo. I confirm this from a correct study. The building suffered somewhat by a well known earthquake a few years ago; but it was again restored by its present owner Segre, who is well aware of his treasure, acces-

for it, and maintains the wonderful gardens in the most beautiful manner, even seeking to extend their area. The loggias and the death chamber of Cosimo the Elder and of Lorenzo are piously preserved. The gardens and Villa are now closed; but the art-loving owner willingly permits the representative specialist a glance into his sanctuaries, doubly consecrated by their historical remembrances and the grandeur and beauty of the gardens and landscape, which overlooks the Arno as far as the Cathedral dome of Florence.

With Ionic capitals used in the wrong direction also appears the already mentioned cloister of the Monastery of S. Maria della Quercia near Bagnaia and the little cloister in the Certosa near Florence.

128. Villa of Giovanni da Medici.

The Villa of Giovanni da Medici, located on the steep slope of the mountain of Fiesole, is more remarkable only on account of its beautiful situation and for the separation of its two chief parts, compelled by the location on the mountain slope, and further on account of the historical recollections connected with this building. It was built in 1458-61, sold in 1671 by Cosimo de Medici, then passed through many changes and is now in the possession of the Englishman Spencer.

129. Villa Reale in Poggio a Cajano.

Entirely preserved in its original condition is Villa Reale, formerly Villa Medici, in Poggio a Cajano near Florence, built by Giuliano da Sangallo (1445-1516). On a substructure 137.7 ft. square, surrounded by porticos 13.2 ft. wide in the ground story, rises the principal story with in the centre a hall 34.4 ft. wide, 64 ft. long, and 42.6 ft. high, covered by a tunnel vault, receiving light from the two ends, and around this are then grouped the other rooms. These are arranged in two wings of equal size projecting from the central hall, one of these being adorned by a portico of 5 intercolumniations crowned by a pediment. The exterior is kept plain; the wall surfaces are covered with stucco and are animated by rectangular windows, then terminated by a strongly projecting cornice
100 with rafters. The portico mentioned is distinguished by colored ornamentation, and its interesting capitals are like Ionic,

while the terra cotta frieze contains small white figures with yellow garments on a blue ground, executed by the Robbias, and the tunnel vault behind the arcade has a decoration by white, blue, and golden colored tiles with the same subdivision in relief as the little tunnel vaults at the Sacristy of S. Spirito in Florence.

Somewhat dry and defective in scale is the ornamentation of the tympanum of the pediment; the arms of the Medici with doubled bands, but for all this, the extended Villa, taken as a whole in connection with the magnificent gardens and the grand park in the country between Florence and Prato, is wonderfully beautiful in its effect, indeed just on account of its simplicity in rich nature.

Here is the true conception of the "picturesque", that is indeed based on oppositions, not yet misunderstood.; a competition of the architectural with the Divine nature is not assumed, with battlements, dormers, pinnacles, and towers, in opposition to the inexhaustible wealth of form of the latter. A villa-hash, as shown by the most recent architecture, composed of the bay windows, gables and turrets of houses in mediaeval fortresses, was unknown then. Men, who desired to live outside fortified walls, longed for light and air and recognized the model for dwellings only in similar architectural conditions, as the antique world had offered.[106]

Note 106. Charmingly in this sense, the pupil of Wagner, Leopold Brauer, expresses himself in the text of his Sketches, Designs and Studies:-- " A Villa" (Vienna, 1899), p. 39, 40:- "For heaven's sake, why have you then built a German Renaissance box here?" -- "Yes, it is indeed picturesque," we are repeatedly told, "one must indeed strive for a harmony of the building with nature; how can this be better done, than by the greatest possible number of free endings?" Go into the studio and take in hand the drawing board with the facades. "This gable is from Peller's House in Nuremberg, the motive of the entrance is taken from an old fortress gate of Würzburg, the original of this turret stands in Rothenburg;" the architect explains, -- "all architecture of the highest rank!" --, and so forth. The little work contains much, that is eccentric, but also much

that is original and well conceived, and it is advisable to read it as well as other "documents of German art" with their profound sayings.

The plan of the upper story is still the original one, but the ground story with the stairway/has been changed. Remarkable in the ground story is a connecting staircase on consoles, that led to the apartments of Bianca Capelli.

Notable for its time is considered the tunnel vault of the hall with its rich coffers, which was strengthened by 4 stiffening arches above it. Pope Leo X had the walls of this hall adorned by frescos, in the execution of which Andrea del Sarto, Francia Bigio, Puntormo and Allori were employed.[107]

Note 107. Von Geymüller notes in his great work on Tuscany, that the so-called "baluster" was here first extensively used, while in the period before Giuliano da Sangallo, the little column was always employed.

The colored internal decorations are the work of the already mentioned Francia Bigio: white and gold predominate therein, blue and red being only grounds for the panels; only the shells of the egg-and-dart mouldings are usually gilded. Visible from afar is the massive tower with defensive gallery and flat, strongly projecting roof, which overlooks the simple, large building and its terraces.

130. Some other Villas.

Located in the vicinity of this Villa is Villa Petraja, likewise a simple building, which was in the 14 th century in the possession of the Brunelleschi, was restored by Buontalenti in 1575 for Cardinal Ferdinando de Medici, and it was later a favorite residence of King Victor Emanuel. Here stood likewise the favorite tree of this king, the evergreen oak 400 years old, between whose branches a staircase extended to a wooden platform. From the period of the residence of the King also dates the covering of the inner court by a roof of glass and iron.

Without special architectural value or charm is the neighboring Villa Castello, though with a so much more beautiful park. This and the Villa previously described each contain a magnificent fountain of white marble by Tribolo and bronze figures

by Giovanni da Bologna. That in Petraja shows as the principal figure a beautiful nude maiden, wringing out her hair, while in Castello a grotto is notable, which exhibits various animal forms in bronze above a marbel fountain basin decorated by fishes.[108]

Note 108. For the theee royal villas, Poggio a Cajano, Petraja, and Castello, free permits are to be obtained at the office of administration in Palace Pitti. A visit is profitable, interesting, and may be made without taking much time. No young architect should fail to visit them.

To be added are still the Villa Poggio Imperiale outside the Porta Romana near Florence, which received its present state chiefly from the wife of Cosimo II, Magdelena of Austria. The exterior is here likewise simple, the interior not being accessible at this time on account of a boarding school for girls therein.

On the western slope of a hill on Bellosguardo near Florence lies Villa Borgherini, built by Baccio d'Agnolo in 1502, in plan a rectangle of 118 by 88.6 ft. with an inner court, enclosed on two sides by vaulted porticos 14.75 ft. wide, around which are arranged the rooms, which are all covered by mirror vaults with intersecting compartments.

Further to be mentioned is Villa Salviati near Florence, produced by additions and by rebuilding a castle-like design about the end of the 15 th century. This has as its ground plan a projecting court with columns, enclosed[109] on two sides by walls and on the other two by buildings.

Note 109. Compare Geymüller; Villen in Toscana, p. 5.

About five miles from Florence is Villa dei Collazzi, rebuilt in 1534 by the Dini, only two-thirds of which was erected, according to a drawing of Michelangelo. It forms a rectangle of 181 ft. length and 123. ft. width with projecting side wings, between which is a portico with 7 arches and a great terrace with ascending staircase in two flights. The two-story building is plain and severe in its architecture, with simple windows, ashlar quoins at the angles, stuccoed surfaces of the walls, cornices with rafters, and red tile roof, like all previously mentioned villas.

A graceful effect is not to be denied to the building, being produced by the open porticos extended through two stories, and this may indeed be regarded as the perfected type of Florentine villas in the 16 th century.[110]

Note 110. A good publication of it may be seen in Belloti, G. Villa dei Collazzi a Giogoli. Florence. 1893.

131. Villas of the High and of the Late Renaissance and their Gardens.

In the villas of the High and of the Late Renaissance, there recedes somewhat the truly picturesque motive of simple masses of the building within a rich arrangement of parks and gardens in a favorite tract in a fertile country, rigid wall masses contrasted with the moving and ever varying outlines of the groups of trees, architecture assuming a more pleasing and richer form, which must be followed by the designs of the gardens likewise.

The first impulse toward artistic treatment of gardens may well have been given by Bramante with the great court of the Vatican, whose difference in level was equalized by the double flight of steps with grottos. The arrangement of gardens on architectural lines, which must be in harmony with the building, became the highest law, and it remained a branch of architecture and a specialty of the architect. A state garden, protected against wind and weather, surrounded by terraces and sunken, adorned by fountains, vases and statues, which must stand in the closest connection with the building, enclosed by balustrades and joined by flights of steps, which were of themselves capable of the richest architectural development, surrounded by imposing evergreen vegetation (trees with ordinary and with needle leaves), together with the view of distant mountains, villages, cities, seacoast, embosomed skilfully in a valley or in lower ground, animated by a stream, flowing always in a straight line, swelling into basins and stored for cascades, -- these are the passive constituents of the Italian garden, which does not wish to artificially imitate free nature with all its accidents, as for example, the "English garden" attempts, "but desires rather to make nature obey the laws of art."

182. Villa d'Este near Tivoli.

One of the richest examples of this kind is indeed afforded by the Villa d'Este near Tivoli, whose ever beautiful design was already executed in 1549 by Pirro Ligorio, who also erected for Pius IV the Villa Pia in the Vatican gardens (1560), beside which may be added a smaller design of the same period in the beautiful garden of Palace Colonna in Rome.

The garden of Villa d'Este covers a tract of about 399,000 sq. ft., 698 ft. long and 571 ft. wide, and it is divided into a lower part containing three pools and an upper one developed into great terraces, on whose uppermost level rises the palatial Villa with its front and side buildings and a simple inner court with piers. Only its southern side next the garden is richly and interestingly treated.

A faithful representation of the entire design is given in the journal mentioned below,[111] according to which the principal facade is shown in Fig. 188.

Note 111. Allg. Bauz. 1867. p.2, pls. 2,3,4. Measured and drawn by Adolf Gnauth and very minutely described by E. Paulus in Stuttgart.

183. Villa Pia.

A papal garden residence with a front pavilion is Villa Pia in the Vatican gardens, begun by Paul IV and finished by Pius IV, according to the designs of Pirro Ligorio (1560). Standing on a site in two levels, it shows on its main axis a loggia with fountain beneath it; on the right and left of this, two curved ramps lead to two vaulted entrances, which open into an oval area, on whose longer side stands the Casino proper with a vestibule, an oblong hall and two subordinate rooms with the added stairway. The rooms in the upper story are less important and correspond in plan to those of the ground story. One side room, measuring 11.8 × 21.68 ft. in the clear, is extended above the roof as a loggia with two and three arches on the ends and sides.

The fountain beneath the front loggia is decorated by satyr-caryatids, and the roof is shaped like a low tunnel vault intersected by two wide gables. The vaulted entrances are imitated from small temples; the facade of the Casino in two stories

too richly covered by stucco ornaments, like those of the other ornamental buildings. The internal apartments are likewise decorated by stucco and paintings in the richest way, as shown by the sketch and details in the work mentioned above.(Simil).

134. Villa Monte Imperiale near Pesaro.

203 Villa Monte Imperiale in Pesaro was designed by Girolamo Gen-
204 ga (1528 or 1530) for Duke Francesco Maria della Rovere of Urbino, but it was never completed, and it still has a powerful effect in its ruinous condition. The building follows on three levels the natural ground and shows below an imposing portico-story, over this being an enclosed facade with pilasters.[114] Eleanore Gonzaga had it built for her husband Francesco Maria "a bellis redeunti animi ejus causa", according to the existing inscription. Before this, Alessandro Sforza had built himself a country house, the corner stone being laid by the Emperor Frederick III.(1469). Under the Rovere, the upper rooms were adorned by stucco ornaments, majolica tiles and frescos, by Camillo Mantovano, the brothers Dossi, Angelo Bronzino, and Raffaelino del Colle. Some rooms are painted in the style of Giovanni da Udine. Fig. 184 gives a representation of the great hall, decorated by landscapes and cupid figures.

Note 114. In Burckhardt's Geschichte der Renaissance in Italien(Stuttgart. 1878. p.280, 281) is to be found a representation of the Villa from a drawing in the Archives of the Municipio in Pesaro, contributed by Herdtle.

The exterior of Villa Imperiale, now belonging to Prince Albani, stands gracefully in its simple forms in the landscape (Fig. 185). Just the quiet masses, the great and interesting outlines, which make the building effectively picturesque in nature, in the landscape surrounding it, and exhibits what I desire to have understood as "picturesque architecture", contrary to the false conception of many modern architects, who have forgotten, that such an effect can only be realized by contrast.

205 135. Villa Lante near Bagnaja.

The first plans for Villa Lante in Bagnaja were made by Cardinal Rafaello Sansoni Riario in 1477. Nicolo Ridolfi from Florence, fifth Cardinal Bishop of Viterbo, had a part of the building erected, but his successor Bishop Gualteri rented the house

and garden. Giovanni Francesco Gambara, sixth Cardinal Bishop, completed about 1564 the lovely residence and had the buildings ornamented by paintings, mostly by the hand of Antonio Tempesta. Cardinal Alessandro Damasceno Peretti or Montalto, the nephew of Sixtus V, becam its possessor in 1588. He built the second Casino and furnished it with a great supply of aqueducts and gardens. Pope Alexander VII gave the property to the Duke of Bommarzo of the Lante family, which still owns it and makes it a summer residence regularly.

It is assumed without sufficient certainty, that Vignola was the master of this lovely creation, for the reason indeed, that he built Palace Caprarola near it. The assumption expressed by Percier and Fontaine, that the Villa was the work of several skilful architects employed at different times for its completion, must be more correct.[115]

Note 115. Compare the publication, not always correct in all parts; Choix des plus celebres Maisons de Plaisance de Rome et de ses Environs (Paris, 1809), and Fig. 186, which gives the general design of the Villa from a photographic view.

The plan of Villa Lante is entered through a high arched gateway decorated by columns, first passing into a flower garden gleaming in a thousand ways with the splendor of color of a luxuriant Southern flora, which is architecturally subdivided
216 into regular beds enclosed by box borders and separated by finely graveled walks. On the longitudinal axis of the plan, the centre of this garden is ornamented by a rich fountain of original design in the centre of a great square basin enclosed by balustrades (Fig. 186). Four small bridges symmetrically opposite each other lead across this to a second circular basin, in the centre of which rises an octagonal platform on which stands a group of colossal figures. Four slender nude youths, between which two pairs of lions are seated, support the arms of Montalto, five mountains with a golden star over them (Fig. 187). Unconstrained, alive, beautiful in outlines and poise, these forms combine in a peculiar way and hold with one hand the plate with the emblems of the arms; the water springs in a full stream from the ground against the under side of the plate and falls down from the points of the star over the

group; the lions spout water into the round basin, like the masks on the pedestal.

In the great square basin, divided into four parts by the bridges, there are at the level surface of the water four charmingly wrought marble ships steered by geniuses, the little ships being themselves richly laden with flowers, mostly blooming oleanders. The pedestals of the balustrade support vases, pine cones, obelisks, etc., but unfortunately time has destroyed their originally minute figure ornamentation. The
227 groups and substructure have taken from the water a deep bronze-
228 brown tone, while the remaining architectural parts have chiefly remained a light yellow and are partially covered with moss; to this is added the rich colored ornamentation of flowers, the reflecting surfaces of the water, and the silvery streams of the fountain jets, -- which together afford a ravishing view.

Access from the flower garden to the first terrace of the park is by two broad flights of steps, which lie along the longer sides of the two residence pavilions (Casinos), made entirely similar in their architecture, and by two narrow paths bordered with box, that intersect in zigzag form the green lawn on the slope lying between the flights of steps. The Casinos exhibit on the level ground beyond the garden, open, triple-arched, vaulted halls, rich and beautifully painted, an example of which is given in the adjacent Plate, while the upper story is animated by double pilasters, blind niches with rectangular windows, which support segmental and angular pediment caps. The frieze of the principal story has small oblong rectangular windows; the roof is hipped in form and is covered by an enclosed belvedere. The sections of the architectural members are rather flat and incorrectly executed, and the faces are entirely constructed of a gray tufa.

Interesting and finely preserved are the high and airy apartments of the principal story; stucco ceilings with rich paintings, friezes with high reliefs and paintings, and ornamental mural decorations alternate with each other in the most varied manner. In the shade of great plane trees, the fountain rises abruptly from the first terrace, pouring first from a Nympheum, the highest point of the park. Between two open halls (Fig.

(Fig. 188) is constructed a semicircular niche of stone, richly covered by vines and shrubs, from which the water, shaded by overhanging branches of trees, falls into a great collecting basin. This feeds a shell fountain surrounded by box hedges and benches, throwing a jet high into the tree tops. T Thence the water runs in a straight line in a channel ornamented by a border with repeated scrolls, that ends in the form of a colossal craw-fish (gambero) with a flat basin between his claws, pouring his water into the great semicircular fountain ornamented by reclining river gods.(Fig. 189). This f feeds a quietly flowing bird-tank 28 paces in length, which is flat and trough-like, extending between two rows of magnificent old plane trees, again supplying with water a lower large circular fountain with charming water effects. Flights of steps between the basins connect the higher and lower grounds.

This place is the most splendid of the entire park; against the heights are the thick-leaved majestic trees with their low hanging branches glittering with emerald green in the sunshine, between them being visible only small spaces of deep blue air; beneath are the fountains and water magically lit up by the gleaming sunbeams; toward the plain is the view of the flower garden with its magnificent fountain with statues, and a view through the portal of the picturesque white-gray houses of the little city with their flat brown tile roofs, and in the distance is the reddish Campagna with Monte Fiascone and behind it Monte Argentario with its wonderful outlines. The design executed with so much taste and understanding is surrounded by extensive woods, that are intersected by walks and are pleasantly animated by rest-seats, basins for swans, and those for bathing. The forest is chiefly composed of evergreen oaks; next the fence on the mountain side stand[118] cypresses, which belong with the most beautiful in Italy.

Note 118. Compare the Author's Essay in Zeit. f. Bild. Kunst, Vol. XI (1876), p. 399. Die Villa Lante bei Bagnaja und das Kloster Maria della Quercia.

Not easily will be found a more instructive exabple of an Italian design for villa and garden for a relatively limited area, than here in the Cimine mountains. What especially

charms us northeners is the magic of trees and flowers with the jets of water around us, but which can scarcely have been invented by the builder. Things looked differently 400 years ago: young trees, new buildings, all well cared for, -- the vegetation is now at the highest climax of maturity, but the buildings are old and ruinous, the artistic design and the art works are in a decadence, just as everything created by human hands becomes in time!

If we today forego enjoyment of everything imposed by nature, silence art-works and cannot revive again in spirit the participation of these in their former condition, thus may we recognize the views of artists thereon and practice unjust criticism; and if it be said; "The cypresses of the Villa d'Este assuredly form architectural motives and much disappeared with them;" it is forgotten that this was not so originally, and that the design must have maintained itself against the criticism of contemporaries.

186. Villa Farnesina in Rome.

In Villa Farnesina we meet with one of the simplest designs in general, with porticos in the ground story and halls in the upper story. A hall with 5 arches between piers extends between two strongly projecting wings (Fig. 190), that contain a normal and a mezzanine story, while the portico comprises the height of both. The surfaces of the facade are subdivided by pilasters; the building is terminated by a high principal entablature, consisting of architrave, frieze and cornice with modillions, and the wing next the Tiber is animated by a belvedere on the roof. The otherwise plain exterior was intended to be painted. The frieze is perforated by small square windows, between which cupids and candelabras support heavy festoons. The facade is distinguished by elegance and grace. ""Non murato ma veramente nato", says Vasari of this charming building, that contains in its interior the most magnificent decorations of the entire Renaissance; paintings by Raphael, by Giulio Romano, by Sodoma, etc., some of them restored by Carlo Maratta. Especially beautiful are the ceilings of the portico with the lunettes (see the adjacent Plate). The Villa was built by Baldassare Peruzzi in 1509 at the order of

Agostino Chigi. Here Chigi received Pope Leo X, various cardinals, and the most famous men of his era.[117]

Note 117. See the general plan in Letarouilly, p. 238 and pls. 100-102.

137. Villa Madama near Rome.

The unfinished Villa Madama near Rome was built from the drawings of Raphael by Giulio Romano at the command of Cardinal Giulio de Medici, later Pope Clement VII. The stucco ornamentation and frescos were executed after 1520 by Giulio Romano and Giovanni da Udine. This is about the history of its architecture according to Vasari,[118] to which should be added; after the death of Leo X (1521), the building remained unfinished; Cardinal Pompeo permitted the Villa to be burned, and Villa Madama being laid in ashes in May, 1527, Antonio da Sangallo began to rebuild it according to changed designs; but it still remained unfinished. The building was hardly commenced before 1530, when the Pope had his hands free again. Pope Clement died in 1534.

Note 118. See Vasari, G. Lives of the most distinguished Painters, Sculptors and Architects. p. 179 et seq. of German edition. Vol. 3. Abth. 1. Stuttgart. 1843.

Jahn first recognized the plan of Antonio da Sangallo among the original architectural drawings and speaks of it in the annual mentioned below.[119] Redtenbacher has discussed it thoroughly in the journal mentioned below,[120] placing the two plans side by side, those of Raphael and Sangallo, and he comes to the final conclusion, "that it would be hard to decide which of the two plans would be the more beautiful. Both have their advantages. Raphael's plan is a stroke of genius, clear and simply arranged. What Antonio da Sangallo added to the existing portion of the building on the basis of Raphael's plan or changed therein permits the recognition of an architect of high rank, who deserves all consideration." We refer to these two ground plans with an expression of regret for the ruin of this wonderful creation![121]

Note 119. Jahrbücher d. Kunstwiss. Vol. 2. p. 143.

Note 120. Zeit. f. Bild. Kunst. Vol. XI(1876). p. 33-40.

Note 121. In Burckhardt's Geschichte der Renaissance in

Italien (Stuttgart. 1878. p. 225), an appeal is made to Serlio, (Book 3, p. 131), and it said; "that these genuine facades and plans far exceed the building as erected; beside the portico with 3 arches in the lower story, there is also a niche on each side."-- The reference to p. 131 is incorrect, should be 121, and the text contains an inconsistency, for it means indeed, that only one of the ends contains a niche. But Serlio himself says, that the second niche was omitted by him for the sake of symmetry, that only one niche was built, on the end next the mountain, that the one on the other end was left out on account of the arrangement of the rooms, (See Italian quotation in original text). The other statements concerning the upper story and the niches on the facades agree with those of Serlio. But the two plans of Raphael and of Sangallo published by Redtenbacher do not harmonize at all with the plans of Serlio, and they are indeed Serlio's own work.

138. Other Villas.

In the court and garden respectively of Palace Giustiniani in Padua, there stand adjacent a Casino and a Garden Pavilion, which we reproduce in Figs. 191, 192, from our own drawings, buildings formerly built by Falconetto for Luigi Cornaro in (1523), entirely distinguished and noble in their general appearance and in details. Of the 5 windows in the upper story, three are now walled up and filled by plaster figures.

The architecture of the Casino is very beautifully developed with the small octagonal hall in the centre, surrounded by 4 rooms, the stairway, and passages to the 3 windows and the main entrance. The loggia with 3 arches in the upper s story is airy and good in its proportions, as well as the arcades forming the separation between the court and garden. The interior is ornamented by small coffered vaults and grotesque paintings, which at the time of our drawing were preserved in the best manner, but have suffered since, where the rooms are rented. Through the arched portico of the street facade a narrow passage leads to the court, in which would not be expected such Renaissance works,[122] which unfortunately are going to destruction.

Note 122. Compare also the publication of the two buildings

*ı Lasius, G. Die Baukunst in ihrer Chronologischen und Con-
truktiven Entwickelung. Darmstadt. N. D. Pl.G.a.7.*

The peculiar buildings of Pope Julius outside the Gate Porta
el Popolo at Rome were commenced at the beginning of the 16 th
entury on the arrangement of Cardinal Antonio Fabbiati di Mon-
e by Jacopo Sansovino and Baldassare Peruzzi. The Cardinal
ied in 1523; Peruzzi survived him scarcely 3 years, and thus
he work was interrupted. The nephew of the Cardinal was elect-
i Pope in 1550 as Julius III, took up the work again, first
sked Vasari, and then Michelangelo for their opinions, finally
electing Vignola as his architect. Since he died after a reign
f 5 years, the abandoned buildings fell, their art-works were
emoved and scattered. This misuse stopped under Pius IV, when
hese buildings were assigned as a residence for cardinals, am-
assadors, and princes, before entering the city. After him,
aul V retained this arrangement. They again fell into ruin,
hen the imperialists and the Spaniards arranged a hospital
here in 1744. Clement XIV had them renovated and Pius carried
n the work of restoration further. To make the empty build-
ngs useful, Leo XII placed a veterinary school in them, but
his was removed by Pius VIII. Under Pius IX, the buildings
erve, as I myself found, for barracks for the papal dragoons,
1866), and when these left the place, a Swiss subaltern was
laced there as a guard of the whole. The Italian government
as now installed there the Etruscan Museum, and it has built
n the court a doubtful Etruscan wooden temple with a cover-
ng of terra cotta.

The plan first shows a rectangular court, formerly a garden
) ft. wide, adjoining which is a vaulted semicircular portico,
hich in a rather capricious way is placed next the street be-
ore a Casino, which contains in the ground story the well
nown two great halls with their beautifully painted and stuc-
o ceilings. A ramp leads in a semicircular space to the upper
tory, which is divided like the lower story. Opposite the
emicircular portico is arranged a Pavilion with side rooms,
or the sole use of the Pope. Two quarter circular flights of
teps lead from the Pavilion down into a lower lying garden
ith a Nympheum, which is separated from another and higher or-
amental garden by a narrow two-story transverse building.

. All the buildings and gardens are arranged symmetrically about a straight main axis, and the whole may have furnished a costly residence for rest[123] in the time of its splendor, not far from the Tiber, in connection with the Vigna at the corner of Via di Ponte Molle and the little votive Church of S. Andrea.

Note 123. A tolerably exhaustive publication of this Villa is to be found in Letarouilly, p. 421-470 and pls. 199-221; also in Percier & Fontaine, pls. 46-49.

Among the designs near Rome, there are to be made prominent as country villas; Villa Aldobrandini and Villa Mondragone; as suburban villas; Villa Borghese and Villa Medici.

Villa Borghese was built in 1605 by Paul V from the designs of Giovanni Vasanzio (Giovanni Fiamingo), the garden was planned by Domenico Savino di Monte Pulciano and was beautified by the Roman architect Girolamo Rainaldi, while the fountains were executed by Giovanni Fontana. The large Casino has on the main front two projections with an open hall of 5 arches extending through one story, to which a flight of steps leads on two sides. The wall surfaces are richly decorated by stucco ornaments; niches with figures and medallions animate them; two belvederes rise above the roofs, thus giving the building a cheerful and elegant character. The interior contains the costly collection of antiques and paintings belonging to the Prince.

The garden and park are here no longer connected; the axial arrangement is omitted; the separate buildings lie scattered between groups of tall trees, intersected by shaded paths leading to little temples, roofed semicircular seats, enclosures for animals, ponds, little islands with fanciful buildings, fountains, etc. A living Pavilion for the family, a portion ornamented by antique fragments, a chapel with added rooms, bird-houses, a long hippodrome, a pheasantry, dwellings for gardeners, and meadows with wild plants, adorn the grand scenery. English gardening demands admission here.

The Villa Medici is arranged on nearly the same plan at the old city wall of Rome, and it was built in the middle of the 16 th century from the drawings of Annibale Lippi by Giovanni

Ricci da Montepulciano, whom Julius III made Cardinal in 1551. The building was enriched with antiquities and enlarged by Cardinal Ferdinando de Medici, a son of Cosimo I. The main building is of rectangular plan with a vestibule open towards the garden, two circular stairways and adjoining living rooms, with an entrance from the street in three aisles. At a right angle adjoins the great antique gallery, enclosing a part of the gar-
215 den. The building shows two high stories next the street, each with a mezzanine, and high additions with two pavilions. The garden facade is ornamented by reliefs in the richest manner, which in combination with the picturesque elevation makes this Villa indeed the most charming example of this species of building in the Italian Renaissance.(Fig. 193).

Villa Mondragone near Frascati comprises two small inner courts in addition to the great main court, has at the rear the so-called Theatre in the gardens, in front the extended terrace with the fountain with its bowl supported by dragons, and a wonderful view over the Roman Campagna. Beneath the terrace are arranged kitchens and service rooms. A representation of the dragon fountain is given by Fig. 194.

Villa Aldobrandini near Frascati was built for the Cardinal of the same name, being the last work of Giacomo della Porta, which Domenichino completed. It is the one most grandly beautiful among symmetrical designs with massive ramps, terraces, cascades and fountains, semicircular niches, with shaded and cool halls and subordinate rooms.

There should be further mentioned Villa Pamphili-Doria with its symmetrically arranged Casino with projecting middle portion, arranged with extended beds of flowers and fountains, and executed about 1644 by Cardinal Camillo Pamphili from the drawings of Alessandro Algardi. A very skilful use of the land is here very prominent. The Casino is carried to a height of three stories.

Villa Sacchetti now exists only in ruins, but it has an imposing niche motive on its facade and[124] once belonged to the most splendid architectural creations.

Note 124. Percier & Fontainegive a restored plan of the building.

216 Among the more important villas of the Late period belongs that (1746) of Cardinal Alessandro Albani with gardens designed by Antonio Nolli. On a long and narrow plan, there rises at the middle a great open hall with piers and a story over it and rooms behind it, adjoined by one-story porticos on the right and left with closed rear walls; at their ends are smaller rooms to receive art works, and near these are the charming little temple-porticos with the well known antique caryatids. On the left of the main axis is a billiard house, on this axis is a flower bed with fountains, down to which leads a great flight of steps, and the end of these is a coffee house with a semicircular open hall with columns (Exedra). Magnificent groups of trees with shady walks complete this artistic work.

In the repeatedly mentioned work by Percier & Fontaine[125] are further represented:- Villa Barberini (built about 1626 by Luigi Arrigucci and Domenico Castelli; Villa Negroni, built in 1570 by Domenico Fontana, with symmetrical gardens composed about a central axis and with a great triangular front garden: Villa Altieri, Villa Bolognetti, Villa Taverni, Villa Muti, Villa Colonna, and Villa Farnesiano. The so-called Farnese Gardens were still (1866-7) in the best condition, with their pavilion-like bird-houses, subterranean grottos, ramps, and sgraffito ornamentation of the walls. The gardens were purchased by Napoleon III (1861), and then by the Italian government in 1870 for the purpose of excavations on the Palatine.

139. Palace del Te in Mantua.

The most important Villa building remaining to us from the golden age of the Renaissance is the great princely Summer-House of the Gonzagas, the Palace del Te (Tajetto) in Mantua, built in 1525-35 by Giulio Romano, adorned by mural paintings and grotesques, and supplied by Francesco Primaticcio with reliefs and artistic ornaments in the interior, such as are scarcely to be found more beautiful and of more perfected form elsewhere. The building forms in plan an enclosed square over 656 ft. on a side; the rooms are of unequal depth and enclose a second court (Fig. 195). The external facades are rather too severely subdivided by Tuscan pilasters; the garden facade

opens at the centre with a wide hall with 3 arches resting on 4 groups of coupled columns, recalling the loggias of the good period. Executed in Stucco word, it lacks the detail of a finer treatment.

217 140. Villas at Genoa.

The villas built in and around Genoa (1512-72) by Galeasso Alessi belong with the best offered on the Ligurian coast. The arrangement of the villa and garden on the slope of a hill also here requires some peculiarities, two systems being employed beside each other. Either the Casino, i.e., the Villa proper, lies close to the street and the plan then extends upwards on the slope, or the Casino lies at the higher end of the plan and is reached by ascending the latter.

There may be mentioned as prominent examples:--

a. Villa Paradiso in S. Francesco d'Albano, built about 1600 by Vanone, which exhibits a long inclined ramp extending from the entrance portal on the street to the Casino in two stories with the usual mezzanine and with vestibules on two sides on the middle axis. The plan is rectangular and the facade is divided into a central portion with two wings; in the upper story and on one side is arranged a loggia extending the entire depth of the building, on the other side being another of but half the depth. The exterior shows rich forms of details and ends with an entablature with modillions and an attic above it.

b. Villa Scassi was built by Alessi in 1560 and shows the reversed arrangement. The Casino is of similar plan but lies next the street, while as in Roman villas, ramps, fountains, basins, terraces with grottos lie on the longitudinal axis and rise towards the hill. The triple subdivision of the facade with a very slight projection also occurs here.

c. Villa Sauli shows an interesting plan with a court before the Casino enclosed on three sides by porticos, the Casino opening with a loggia of three arches in the entrance facade.

d. The earliest work of Alessi is found in Villa Cambiaso in Albano, built in 1548. It has an approximately square plan with a facade subdivided in three parts, with a triple-arched vestibule opening betueen the angle projections. The ground

story is subdivided by three-quarter columns of the Doric order, the upper story by Corinthian pilasters. High stories with mezzanines, entablatures with modillions, and an attic, are the
218 usual accessories, beyond which Genoese villas did not go. From the modern point of view, their exteriors are less picturesque than the Tuscan and the Roman. Ramps here lead up to to the elevated Casino.

e. Villa Pallavicini delle Peschiere was also by Alessi in the time from 1560-72. The Casino with its projecting side wings is elevated high; ramps and grottos lead down to a sunken garden.

f. Villa Franzone in S. Francesco d'Aloano, built by Borsotto in the 17 th century, also has the elevated Casino next the seashore and the sunken garden constructed on the land side.[127]

Note 127. A large number of Genoese villas is published in Reinhardt, R. Palast Architektur in Oberitalien und Toscana vom 15 bis 17 Jahrh. Genoa. Berlin. 1886; also Gauthier, P. Les plus beaux Edifices de la Ville de Genes et de ses Environs. Paris. 1830.

141. Villas of Palladio.

Palladio's villas (1518-1580) are mostly to be considered as great and regular country-seats standing in the midst of farm buildings, and he was well acquainted with the original form of the villa, for he did not open the facade as a loggia, but rather always placed before it a portico or even an entire temple-portico with columns, entablature, and pediment. His most famous Villa, called La Rotunda, is that one built for Marchese Capra, which has a great circular hall in the centre, surrounded by external apartments, so that the plan produces a square, whose four sides have hexastyle temple facades, to which lead massive flights of steps (Figs. 196-199). The building has one story and a mezzanine; the form of the circular hall appears externally (Fig. 198); the hall itself is lighted by a skylight at its apex.

Further to be mentioned are the Villas Pisani at Bagnolo and at Montagnana, Villa Violante Porto, Villa Valmarana with hexastyle porticos in both stories, the upper one covered by a

great pediment,[128] Villa Thiene, Villa Pojana, Villa Schio, and many others.

Note 128. Published in Scamozzi, O. B. Les Batiments et les Dessins de Andrea Palladio. Vol. 2. 2 d edition. Vicenza. 1786.-- Other Villas are to be found in Vol. 3 of the same edition.

In the third section of the work mentioned below[129] are given
219 villas, partly executed, partly begun and then never completed, or merely building plans for villas, that never came to execution. To these belong among others, Villa Foscari on the banks of the Brenta, Villa Antonini in Friuli, Villa Trisino, Villa Sarego, and Villa Masor near Treviso. Another work[130] mentioned
220 below also gives the last named, built for Daniele Barbaro near Treviso, which is entirely built of brick, including all ornaments, capitals, festoons, statues, etc. It has been again described recently by Reinhart in the journal[131] mentioned below with an illustration. The opinions on this Villa in the three publications are so entirely different, that one cannot tell what the art-loving public can make of such statements. Of these, Auer says in his Essay on Palladio in the same journal,[132] that the exterior has been spoiled by the hands of dilettantes, while in the same journal[133] on the occasion of a description of the frescos of Paolo Veronese in this Villa, Janitschek says; "The effect of the beautiful central building is greatly injured by the side **wings**, whose angle projections are disfigured by ugly curved volutes." Scamozzi cannot be made responsible for this, since the view of this Villa in the edition of the "Archittettura" supervised by Palladio himself differs in no wise from the form that it has today. Then Janitschek refers to Book II, Chap. 14 (p.51), of the edition mentioned, which Jean Rossi also uses in his text on Villa Maser!

Note 129. Francheschi, D. de. I quattro Libri dell' Architettura di Andrea Palladio. p. 5. Venice. 1570.

Note 130. Louisa a Rialto. L'Architettura d'Andrea Palladio divise in quattro Libri. Venice. 1711. (Therefore somewhat earlier than the previously mentioned work). -- Vol. 2. Dei Disegni delle case di Villa di alcuni Nobili Venetiani. Chap. 14. p. 115.

Note 131. Zeits. f. Bild. Kunst. 1866. p. 61-64.

Note 132. Do. Vol. 17(1882). p. 65 et seq.

Note 133. Do. 1877. p. 364.

So much is then certain from the view from nature in Fig. 199, that Reinhart gives something in his illustration for the Villa Maser, which is like it, but is not that building, and that Janitschek is also incorrect, when he says that the execution agrees with what Palladio gives in the edition of his book in 1570, supervised by himself. The middle portion agrees generally in construction with the plans, except for the pediment statues and the beautiful figures in relief on the tympanum. The first does not exist; but instead of the cartouche of arms with bands as drawn, there is a double-headed eagle with nude reclining and kneeling figures. The angle projections have in their massive piers rectangular niches with statues; the plan does not show these. The pediment-like additions have neither in the drawings nor in execution "ugly curved volutes", but harmoniously shaped quadrant curved connections; the middle part of the gable of the projection is square in execution, but rectangular in the drawings, and accordingly the figure is a circle and not an oval. On the former is a figure of Time and a band of figures, on the other is painted a circle of animals!

The great decorator Paolo Veronese permitted himself a few jests in his splendid painting of the interior, when he astonishes the visitor at his entrance by two figures, a page and a maiden, which seem to gaze inquisitively at him. Then at the rear of the series of apartments, in a view from one end to the other, there are painted two doorways, through which one believes he is looking out into the open air, a youth in hunting costume appearing to enter through one, and a young lady through the other.

A plan of the Villa is given in Fig. 200 in accordance with the source mentioned in Note 130.

142. Villas of Serlio.

Serlio again gives in the 7 th Book of his work [134] already mentioned 24 examples of Case fuori della Citta, which in addition to well known things propose many fanciful ideas. These are sometimes entirely enclosed designs with a round, oval, or

octagonal hall in the centre, around which are grouped the various living rooms. The form of the Greek cross is sometimes chosen, or the form of the Latin capital H or I; then again for angle buildings connected by walls enclose a square garden or court, at whose centre stands a pavilion; or a semicircular plan of the court with projecting wings is selected, adjoined by the living rooms at a right angle; then comes an octagonal court around which lie enclosed halls and rooms, with buildings
222 projecting at the oblique sides of the plan. The oddest assumes a cross-shaped plan with small projecting transverse buildings at the ends of the arms of the cross.

Note 134. Venetian edition of 1584.

The loggia retains its old rights in many of these designs. The houses are either one-story or are placed on a high base, an additional half-story is given to them, or only certain portions are carried higher, for example, the wings or the central structure or both, while the intervening masses of the building remain only one story. Two-story designs are recommended, especially if enclosed courts are assumed; these are then surrounded by vaulted porticos in the lower story, which become terraces in the upper story. The master likewise pleased himself with a continuous balcony in the upper story of the court instead of the porticos and terraces. He once preferred to the native flat roof[135] the steep French roof (not a mansard). This is a Villa consisting of three wings surrounding a square court on thereee sides, which is enclosed in front by a wall with an entrance gateway. He then added[136] great dormers to the roof. (See Italian text in original).

Note 135. In Chap. 24. Della Casa Vigesima Quarta fuori della Citta.

Note 136. Chap. 24. p. 80.

He likewise endeavors to introduce the steep hip roof on the flanking wings.[137] (Alli angoli della quale vi sono le mostre di duo toricelli). Burckhardt[138] hereon remarks, that he wished to pay a compliment to his French patrons with this addition, when he introduced in his book Gothic dormer windows clothed in Renaissance forms. An effect like Chambord, where the most important and characteristic architectural forms are placed on

the roof, would then have only caused objections in Italy.

Note 137. Book VIII, p. 135.

Note 138. Burckhardt, p. 190.

Leon Battista Alberti only allowed obelisks, acróterias, and statues as ornaments on the roof.

Otherwise, Serlio follows in his villas tolerably closely the Roman or Genoese rule for a location on the slope of a hill, palace in front, garden behind, the fountains and water basins higher up.[139]

Note 139. Compare Book VII, p. 175, 165, 161.

143. Neapolitan Villas.

No important Neapolitan villa dates back of the 18 th century. Older designs on the Vomero do not equal the Roman on account of the lack of water; "but they are so arranged, that the view would make one forget the finest surroundings".

The summer Palace already mentioned among Neapolitan palaces (see Art. 115), a Villa with extensive gardens, the Poggio Reale of King Alfonso should be further considered among villas, of which Serlio says;[140] "Questo palazzo per cosa moderna ha bellissima forma." The court is surrounded by vaulted arcades in two stories; its pavement lies several steps below that of the lower portico, thus having the appearance of a basin, down to which continuous steps lead (Fig. 201: plan from Serlio).

223 The King ate here and enjoyed himself "con quelle Madame e Baroni", which he invited. The climax of enjoyment was reached, when the King had some stopcocks in the steps opened, through which the water poured into the court; (See Italian text in original) . "-----------" cries Serlio after this description, not without longing. United Italy neither brought back these sports of the gods, nor did it produce harmony.

Note 140. Book III, p. 121 et seq.

He gives us a view of the exterior in two stories and a section through the court with its basin and the two porticos over each other.

Inspired by this building, which has unfortunately disappeared, Serlio gives an improved design, where in place of the court is a hall with an increased number of subordinate rooms and good stairways. He makes the exterior more animated, for

he supplied the 4 angle projections with towers like belvederes, subdivided the wall surfaces by pilasters, and after the Genoese manner inserted a mezzanine over each principal story. We cannot avoid here the reproduction of this plan, which is still usable.(Fig. 202).

The rather simple statement of Serlio was extended by making known a ground plan, found in the library of Palace Barberini[141] and published by von Geymüller in his great work on Tuscany. But we should probably not recognize in this the actually constructed building, but rather an extensive ideal project of Giuliano. The basal idea is found in the columnar court in this, as in the small design, of rectangular and not of square form; the 4 angle pavilions are also retained; but the plan is otherwise extended and grandly conceived, so that it must be counted among the most interesting creations of the Early Renaissance. The entrance facade is dominated by a slightly projecting central part with five columns between the projecting angle pavilions, from which three parallel halls lead into the stepped court, as in Palace Farnese in Rome. Since the entrance should follow on a longer side, the opposite one receives on account of the perspective effect a rectangular projection, at the centre of which is arranged a fountain. Behind this lies a great state hall with a dome-like adjoining room and oblong rooms at the sides. Finely conceived and wonderfully arranged! No less than 14 stairways in this extended design provide access to the upper story, in which are arranged a multitude of conveniently accessible subordinate rooms with and without ante-rooms. The long side facades are again interrupted by projecting central parts, which animate the receding parts by porticos, so that a general incomparable effect is produced, which in combination with the interior would have raised it to an art-work of the very highest rank.

Note 141. Plate 3. Giuliano da Sangallo. Disegno fatto per il Re di Napoli nell' anno 1488.

144. Villas in Upper Italy.

In Upper Italy, the plan of Giardino Giusti at Verona deserves mention, even on account of its wonderful cypresses. The Palace is placed next the street; the plan ascends the slope of

the hill to the high terrace overlooking the valley of the ---. In the western bay od Lago Maggiore lie the little islands composed of low rocks of mica-schist, on which Vitalino Borromeo (d.1690) created a princely seat by the building of a palace and the arrangement of gardens, with magical effect of imagination. On Isola Bella the design rises to a height of 105 ft. in 10 terraces, ornamented by statues and intersceted by shaded and grotto passages, charming with its far southern vegetation.

On Isola Madre, 7 terraces bear similar ornamentation with precious views of the villages on the lakes.

Chapter 13. Houses.

"A very poor man is happy, if he merely finds a roof. He is always satisfied with a little hut of 10 × 12 bracchias without any internal divisions."

Filarete's Traktat über die Baukunst. Book XI

145. House of the Artisan.

What Filarete here says was already true long before him and will be further true as long as poor devils are on this earth. But in his ideal city of "Sforzinda", he would provide a home for the artisan, the merchant, and the artist, and he prescribes special architectural programmes for such people, which may follow here.

a. For the home of an artisan, a floor area of 30 * 50 bracchias suffices, the end being turned toward the street. A passage leads thence through the middle of the ground story, on one side of which is a work-shop with a store-room behind it, on the other being a dining room and bed room. Next the little court behind the house are to be the wood-house and fowl-house at one end, the kitchen and vaulted cellar beneath it being at the other. If the building be two-story, then a sitting room and a chamber are to be arranged in front with two other rooms next the court. "Since for this arrangement 34 bracchias in depth are required, this story must project about 4 bracchias over the lower one; this occurs next the street, so that the workshop has a projecting roof above it." Along the side next the court extends a gallery, on which the washing may be dried. The garden should have a depth of 10 bracchias.

Since Filarete is silent concerning the stairway, it may well

be assumed, that he laid no great stress on its treatment, which may appear justifiable on account of the limited dimensions.

146. House of the Merchant.

b. The house of the merchant is indeed conceived by Filarete to be somewhat more important, for he first assigns to it a larger site of 50 × 150 bracchias. He requires for it a fore-court, closed by a portico on the side next the street, and enclosed on two sides by projecting wings, on the third by the dwelling. Before each is placed a portico for the unloading of goods, behind this being found offices, sales-rooms, as well as store-rooms.

He also places a portico before the house, through which a central passage leads to a second court; the latter is only separated from the garden by a portico. The side wings contain in this second court servants' rooms, kitchen, bakery, and the like, while there is only a cellar under the main building, in the ground story being arranged a great hall and two great rooms

In the second story is then found a drawing room with a room at each end, and the like arrangement occurs in the upper story. The second story of each wing contains two chambers. The flat roof of the portico on the street serves as a balcony and fragrant plants are placed there. "It is necessary to provide conveniences of all kinds," whereby the stairs are also meant, though Filarete says nothing about them here. The principal doors and windows have the proportions of 1 to 2; those of 1 to 1 1/2 being assumed for the others.

The care taken of the fore-court, the unloading of goods, the balcony with its flowers, the situation of the home somewhat removed from the street traffic, the change in the height of the different parts of the building, -- are indeed charming things; but whethera merchant of middle rank ever built so, can hardly be assumed.

That the great merchants and manufacturers were not pleased therewith, we know (compare the Medici, Rucellai, and others), and that the small dealers lived in rented houses near the great merchants, exactly as in classic antiquity and also to-day, we likewise know.

Wherever possible, the antique house was taken as the bases of the house as well as of the palace, and the same economy

with limited sides, for example in Pompeii, which grand idea was formly retained, likewise appears in the time of the Renaissance.

A little court with or without a vaulted passage around it and a good stairway are found everywhere, when the rooms next the street were rented for salesrooms or used for stables, carriage-rooms, etc., as shown by the plans of houses in the Via Cinque Lune on Place Madama, as well as the Palace del Bufalo.(991(. 203-205).

Brunellesco renounced the use of the court in the five-sto-
226 ry house in Wia del Governo Vecchio at Rome (Fig. 206), where the ground area must be utilized to the utmost, which gave occasion for an unusually high building in stories in proportion to the dimensions of the plan.

147. House with Store.

The merchant's house, or better said, the house with a store, found its definite architectural expression in certain Roman palaces and houses, where usually a mezzanine story was added
227 to the store, and which served as a storehouse or for the rented dwelling of the dealer, while the best story, i.e., the residence of the nobleman only commenced above this.

A noble example of this kind was given by B. Peruzzi in his Palace Costa in Rome (Fig. 207), where the doorwaysto the store show the moderate widths of 7.6 ft. with low heights; these are always spanned by horizontal arches by preference, -- entirely after the antique method.

A similar solution appears on a house in Via del Governo Vecchio in Rome, but where the doorways to the shops are made wider (Fig. 208; 8.38 ft.).

The endeavor to make the shop as wide as possible in the period of increased prosperity and of the enlarged activity of the dealers, as well as the increased endeavor to attract the purchasing public, already existed then as at present, and it then as now found its peculiar expression on the facade. Store openings of nearly 13.1 ft. clear width, spanned by loaded horizontal ashlar arches also look well in our time, when the residence stories over stores are set on "stilts", and the widest openings in the facade are placed in the ground story;

but they are still admissible and never violate the sense of stability, since they are always separated by massive rusticated piers and the character of the strength and solidity is innate in the spanning of the opening.

228 What may be dared with well executed and properly calculated horizontal arches up to 12 ft. span is shown by Fig. 209, where the middle is loaded by a window pier extending through all the stories above, and also Fig. 210, Palace Niccolini. With the but slightly less clear width of 11.5 ft. of the shop, Giulio Romano held it to be better on his Palace Cicciaporti in Rome (Fig. 211), in accordance with antique models (Theatres in Ferento, Taormina, Rome), to relieve the horizontal arch by a semicircular one, and to insert the mezzanine window within the latter as an effective architectural motive.

148. Houses for Occupation and for Renting.

Besides the business places for artisans and merchants, there were also built dwellings or rented houses for officials, artists, learned men, small capitalists, etc., either as needed buildings of ordinary character, or as artistic buildings with the assistance of architects, that the best of the profession did not reject and sought to confer on them an artistic appearance.

The House of the Notary Sander in Rome, built (by Bramante) with three windows like most of this kind, gives proof of this and is evidence that even a dwelling may become a monumental work of art, if one proceeds with earnestness, spirit, and taste. The good proportions of the windows with their beautifully proficed architraves and the fine sgraffito friezes beneath the window-sill courses, the skilfully adjusted alternations of openings and of masses, here create a model, modest, yet still artistically imposing facade of a dwelling.

Charming examples of such houses with three windows are af-
229 forded by the facades produced at somewhat greater outlay, of the so-called Palace Serristori in Florence, built by Baccio d'Agnolo, and that of Casino di Livia there by Buontalenti, (Figs. 212, 213), where the too rich ornamentation of the Early Renaissance is avoided. The buildings will be no more refined than their occupants!

I reckon that the so-called House of Palladio in Vicenza is among these happy creations. At this place must be mentioned likewise the little House noted by Burckhardt[142], built about 1481 not far from the Palace Basilica in a still half Gothic style, recognizable by the motto; "Il n'est rose sans epine."; then that number 1944 with the motto; "Omnia praetereunt, redeunt, nihil intersit."; and number 1276"as a remarkable attempt to be monumentally imposing in the very smallest dimensions."

Note 142. In Der Cicerone, etc. p. 224. Ist edition. Basle. 1860.

Referring to Burckhardt's Cicerone (edit. 1860), these are to be added; in Padua (p. 223), the so-called Casa di Tito Livio (Palace Cicogna), a small building; in Ferrara (p. 213), the simple House of Ariosto (Strada Mirasole no. 1208, Fig. 220); in Bologna (p. 203), the capriciously beautiful little corner
230 House no. 496 Via delle Grade, and various ones on Place S. Stefano; in Bergamo, the Casa Maffeis with its elegant little court (Fig. 214), surrounded in the ground story by a colonnade with architrave, in the upper story by an arcade portico, and likewise in Bergamo is Casa Fogaccio to be mentioned, a three story building, the stories subdivided by pilasters, and the upper story distinguished by a loggia.[143] This House is located at No. 11 Via Gaetano Donizetti, built of dark marble with inlaid disks of red Veronese marble, recalls in details Palace Communale in Brescia, and it is of extraordinary beauty with the most refined profiling of the belt-courses. Taken under restoration some time since, it must after completion be classed as one of the finest private buildings of Upper Italy. The chosen palace motive for this House with three windows is not disadvantageous in the narrow street. This building has an entirely monumental effect within narrow limits. Pietro Isabello, surnamed Albano, is designated as architect.

Note 143. These houses at Bergamo, as well as the following houses in Brescia and Milan, are published in Paravicini, T. V. Die Renaissance Architektur der Lombardei. German translation by P. Koppel. Dresden.

Bergamo conceals in its older portion an abundance of stimulating examples of the smaller houses of all kinds and of all

phases of Italian Renaissance art. Charming ones are presented by the transition style with trefoil windows in the upper story, below these extending painted friezes with foliage, medallions and cupids. Some houses on Via dell' Arena in the vi-
231 cinity of the Cathedral exhibit interesting things with completely painted facades. The ground story with ashlars painted gray on gray, in the upper stories being simple rectangular windows above continuous window-sill belts, the window enclosures being made especially prominent by paintings, the wall piers being animated by painted figures in niches between painted columns, these figures being yellow as well as the capitals, the shafts of the columns being treated as if composed of variegated marble, besides them being painted loggias with rich perspective views; we further find half-timber houses above a stone ground story, the external walls of the upper sotry resting on projecting beams with plates, the front surface now plastered white, formerly showing the wooden framework, the example of a half-timber house built at the foot of the Alps under Swiss influence, without any art forms.(Fig. 127). Then the interiors of such houses with charming little courts, surrounded by arcade or colonnade porticos in the lower or upper stories, often picturesquely overrun by green vines adorned by gay flowers! These are dwellings in modest style but charmingly beautiful.(Figs. 215; Court of Houses nos. 72 and 74 Via Pignolo in Bergamo).!

But this external colored ornamentation could not be forgotten in the houses in Vicenza. Men first learned from this point of view to properly appreciate and understand master Palladio
232 in his simpler creations. His little House with two windows has rather too classic an effect in the drawing; but conceive the colored decoration added to it, which may well be realized from the vestiges on the building: the shrine between the Corinthian pilasters of the upper story contained a large figure painted in fresco in bright colors, likewise the rectangular panel in the attic story above, the small windows beside this, surrounded by cartouche-work and grotesque ornaments, the parapet frieze beneath being also decorated by paintings, as well as the simple, large rectangular windows enclosed by grotesque

paintings. The surfaces of other facades once bore the like complete ornamentation according to still existing vestiges, which now appear to dry or plain, palaces by the same master in the city, that are properly understood only with this decoration, and should thus be judged.

In Brescia should be mentioned the three story Casa Bolognini with beautiful portal, rectangular windows, peculiar lace-work and spherical ornaments on the surface of the facade of the third story, a House on Via Torino in Milan with a pretty court with columns, and with the broad window architraves characteristic of mediaeval buildings in Lombardy; Casa Salimbini in Via Torino there with an interesting three story court with columns, and finally, also the court of Casa Taverna, beautifully painted by Luini, a colored drawing[144] of which is reproduced in the work mentioned below.

Note 144. Gruner. B. Specimens of Ornamental Art. London. 1850.

149. Simple Houses for Renting.

But of the simplest houses in blocks, as they stand close together in the streets of Tuscan cities, Fig. 217 gives a representation from a drawing in the Uffizi. Solid ground story with doorway and mezzanine windows, simple window-sill courses, on which stand the semicircular windows, divide the height of the house; a projecting cornice with rafters terminates the building at top. On one of these houses, the owner has made himself known by his family coat of arms.

233 150. Filarete's[145] House of Virtue and Vice, and House of Onitoan Noliver.

Note 145. Formed by transposition of the letters in the name of Antonio Averlino. See XVII, Buch der Traktat.

When Filarete begins the description of his Houses: "the House should properly have the complete form of a hill; but since it must be habitable, then is it built in stories,"--this suffices, and when he provides in the House of Vice for brothels, beer-saloons, cook-shops, gambling-hells, and rooms for women, and also rooms for police soldiers in addition thereto, with the argument that vice requires a curb, and too great scandal must be atoned for by prison and other punishment, -- this is a good measure,

and when he raises over that of Virtue a dome supported by the nine muses, on which the figure of Virtue crowns the whole, -- a form in armor with a sun-like countenance standing on the apex of a diamond, with a laurel-tree and a date-palm in its hands, a fountain of honey at its feet, from which bees are sipping, -- as difficult of access as Parnassus and furnished with a spouting spring like Helicon, which scarcely leaves anything further in grandeur of thought to be desired!?

But in the enclosure of the Houses of Virtue and Vice has his own house found a place, the wonderfully decorated House of "the builder of all great works of the city." But he was modest in the size of his artist's home, for he built on but 1/3 of its site, leaving the remainder as a garden. He placed a portico of four arches before the house; a middle passage left rooms on the right and left; the passage itself led to a columnar court with a portico, behind which lay a building in two stories with a garret. The lower story contained two rooms, separated by a passage to the garden; in the upper story was found a salon and a chamber. In the front building were two chambers above, over these being a larger hall occupying the entire space. The garden contained a fish-pond and was surrounded by offices, stables, etc.

And then the little variety! "Over the door and in the court,
234 it has been permitted to Onitoan to add his portrait with an inscription in honor of his works; also the allegory of Virtue and Vice devised by him, of caprice and reason, of fame, of remembrance, and of intellectual talents."

In antiquity, in gratitude for the success of his statue of the deity, Phidias was accused of theft of the gold; an imperial dilettante had Apollodorus' head cut off; in the middle ages, the devil took care of the artist, who had finished a great work; Sansovino was imprisoned in the Renaissance, punished by a fine, deprived of his honorary office, because a part of his wall fell down; Peruzzi died in poverty; Borromini took his own life; in spite of his numerous buildings, Palladio never prospered; Titian became a rich man by his traffic in wood, but not by his art, - and Filarete deluded himself by the thought of higher honor for what he had done against his judgment, and which was never

assigned to any artist!

Raphael, Bramante, and Giulio Romano had their own houses in Rome and Mantua; Palladio built for himself a modest home in Vi-
235 cenza (if this be true); Salvator Rosa occupied a charming little house in Rome (Fig. 218), and that which contained Michelangelo at the foot of the Capitol was not large, according to the plan, and Ariosto inscribed on his house (Fig. 220):--

"Parva, sed apta mihi, sed nullia obnoxia, sed non sordida, parta meo sed tamen aere domus."

None have ever been too comfortable.

151. Location of the Living Rooms.

Leon Battista Alberti also speaks in his fifth Book[146] of the place of the living room in the house, in which he is so rational, that he establishes no generally valid rule for their arrangement towards a particular point of the compass, but makes this dependent upon the nature of the ground and of the air at the site of the building.

Note 146. Chap. 17, p. 124. De la Villa de Padroni e de le Persone nobili e di tutto le parto sue, e del luogo loro commodo.

After a lengthy discussion of chimney flues, he requires the kitchen to be so placed, that it should not immediately offend the quests; but it ought not to be so located, that in bringing in the food, this would come to the table too cold or too warm, and also that the kitchen maids handling frying pans and bowls may not be heard while eating. The room of the mistress of the house is to be so placed in the plan, that everything may be overlooked from it, that is done in the house. Husband and wife should each have separate rooms, in order not to weary each other in case of illness, etc. Each of these rooms should have a separate entrance and also a door connecting the one with the other, so that mistress and master may communicate privately. Next the room of the wife is required a room for articles of
236 clothing and one for books adjoining that of the husband. If there be an aged father of the family in the house, a warm room with a stove (caminetto) must be provided for him, and beside it a room for articles of value. The boys can be placed in the latter and the girls in the room for clothing, beside this being a bed room for the children's maid or nurse.

Rooms for guests are to be arranged near the corridor, in this vicinity being a room for resting and to receive articles of value. Their location near the entrance enables the guests to receive calls without causing disturbance in the house. Opposite the rooms for strangers are to be placed the rooms for the youths of 16 to 17 years, or at least not far from them, so that they may cultivate friendship and stay with the strangers. The rooms for the maids and servants must not be placed too far from the state apartments, so that the former may always be at hand for service; but house-boys should sleep in the stables.

The same views are even still valid on this side of the Alps and beyond them.

Chapter 14. Details and Internal Finish.

Even if certain details of palace, villa, and house architecture were necessarily touched upon in Chapter 1 and in treating of the different kinds of buildings, a systematic grouping of these cannot be dispensed with, especially since in many cases the kind of material employed determines the mode of their artistic treatment; for example, whether stone, brick, terra cotta, wood, plaster or stucco, was selected for its execution, which can only here be considered in detail. The derivation of certain portions from works of an earlier period may likewise be more fully considered here.

a. Base.

152. Form.

A special base in more or less developed form, size, and projection indeed belonged in all periods to every artistic structure, whether it be an arrangement of steps, as on Grecian temples, or a substructure divided into three parts, as shown by Roman temples (Fig. 133; Maison Carree in Nimes), or by a slight projection of a high course of slabs set on edge, as on the walls of the cella of the Doric temple, without any further addition of mouldings.

The last kind was preferably followed by the Renaissance, where narrow streets forbade a strong development of the base, or where the nature of the material made mouldings close to the pavement seem not permissible. Thus the brick buildings of Bologna frequently dispensed with any art form at the base: the

brick walls rise vertically to the first window-sill course 237 (Casa dei Carraci), or a plain base was constructed of stone slabs, the brickwork thus being kept from contact with the sidewalk.

153. Base divided into two or three Parts.

On Palace Serristori in Florence, the ashlars with bosses begin directly from the sidewalk; Palaces Torregiani and Quaratesi in Florence, Verospi in Rome and others, have plain and slightly projecting bases; Palaces Pandolfini and Pitti show a division into two parts, i.e., a plain or moulded covering belt above the masonry rising from the ground; Palaces Strozzi and Guadagni in Florence and Bevilacqua in Bologna have the well known bench base; Palaces Rucellai in Florence and Piccolomini in Pienza have a back connected therewith, which is limited by a special belt course.

The antique Roman division of the base into three parts was first adopted by Bramante in the most beautiful way on Palace Cancellaria and on Palace Giraud in Rome, which have remained models for the later period. Plinth, dado, and cap, together form the base of the building, first emphasizing at a small scale, what is expressed at large on the entire building by its triple division into base, vertical wall, and the roof cornice. (Compare Fig. 146).

b. Belt Course.

154. Shape.

Window-sill belts and belt courses between stories divide horizontally the vertical masonry in height, the former of these being usually made less bold and less strongly projecting. Florentine palaces and houses of the Early Renaissance all exhibit according to mediaeval custom continuous window-sill belts, profiled like antique cap courses, on which directly rest the window architraves. They mark on the facade the height of the window sills, which certainly does not correspond to the distance from the floor customary with us; for frequently the steps arranged in the window recess only raise the occupants enough to permit them to look down into the street.

When the height of the story from floor to floor is to be indicated on the exterior, and not that from window sill to window

sill, plain bands then occur at the height of the beams, frequently accompanied by a frieze and astragal. (Figs. 143 to 145 etc.). But both forms of belts also occur together on the building, if the horizontal is to be still more accented, when the story band becomes the base of the window parapet, which then consists of the base, the parapet slab, and the continuous window-sill course.

But the stories are also indicated by another mode of horizontal division, whether a vertical subdivision by pilasters of the different orders occurs or not; then the antique members, architrave, frieze and projecting cornice, extend across the facade as a window parapet. (For example, Palace Rucellai and Palace Lardarel in Florence). If brickwork is employed instead of ashlars, the projections are then reduced in accordance with the material; the energy of expression is lessened; the love of ornamentation recedes into the background; the customary antique members are even omitted. (Compare Palace Fava in Bologna).

c. Main Entablature.

155. Wooden Entablature.

The upper termination of the building is formed by the roof or eave cornice, whose form, size, and projection in esthetic 232 respects primarily depends upon the entire building, but which is chiefly determined by the material. The oldest form is indeed the wooden cornice, which is composed of the uppermost beams and the rafters of the roof. It best fulfils its purpose by affording to the lower parts of the building protection and shelter against sun and rain. The great projection, frequently extending more than 6.56 ft. from the face of the wall, is practically not produced by oblique struts, as in mediaeval wooden architecture on this side of the Alps, but by projecting timbers laid on each other (compare Fig. 59) or by consoles.

156. Entablature of Cut Stone.

The projection of the eave cornice is limited with the use of sandstone or limestone. In order to not be compelled to build walls of unnecessary thickness, the Renaissance has frequently adopted very artificial expedients, in order to obtain the greatest possible projection, as first made apparent on the entab-

239 entablature of Palace Strozzi.(Compare Fig. 188). In relation to form, it generally took up the antique cornice with consoles, then paying attention to the ancient ratio of 1 to 1 of height to projection, sometimes employing the consoles in simpler forms in the frieze, sometimes in richer forms beneath the cornice with coffers. The corona is then accompanied by frieze and astragal beneath, or by frieze and architrave, according to the subdivision of the surface of the facade.

157. Entablature of Brickwork.

If bricks were employed, then the eave cornice applies what was said in Art. 154 concerning belt-courses of brickwork. The projections are reduced; the decoration by ornaments in relief and color then afford a substitute for the lack of energy.

158. Cavetto Entablature.

Egyptian styles are almost recalled by the great cavetto cornices constructed of wood, reeds, and plaster, and whose monumental models must indeed be sought on the facades of the Early Christian basilicas of Rome. In combination with lunettes and colored ornamentation, they furnish a charming decoration crowning the building, as may be seen on many Lombard monuments, most beautifully on the House on the bridge-head of the Certosa near Pavia.(Fig. 221).

d. Projection of Upper Stories.

159. Upper Stories corbelled out.

The mediaeval corbelled story, where no words were wasted on the construction, does not absolutely imply half-timber work, to which no attention at all was devoted in the cities of Italy. Already in the middle ages (see Pisa, Florence, Siena, etc.) more monumental methods of construction were employed in order to obtain a relatively wide street for traffic without loss of space for the dwelling, the compulsory reason that produced projecting and high buildings in stories in the cities with increa-
240 sing population and closely restricted walls.

Then the corbelled-out facade walls rested on stone corbels connected by arches, and either bricks or ashlars were employed, according to which material was most advantageously provided at the locality. Thus, for example, at Bologna on Casa dei Carraci ordinary bricks were employed without any artistic

forms, consoles were built out, finished with stone caps and connected by semicircular tunnel vaults, which have richly moulded and ornamented archivolts on their fronts; above these commences the plain masonry of coursed brickwork.(Fig. 222).

At the same place and in the court of Palace Fava, the tunnel vaults are set on massive, richly ornamented consoles, which support a continuous balcony, but which (according to Filarete) is not intended for the drying of linen.

The mediaeval system was retained in Florence, except that for the tunnel vaults, the pointed arch was replaced by the round arch, or ashlar consoles were used instead. Very beautifully executed in its artistic development (volute scrolls and surface ornaments on the spandrels; compare Fig. 223 D) is the corbelling on the facade of the Inn "Ginevra e Porta Rossa" in Via Porta Rossa in Florence. On a House in Via dei Michelozzi near S. Spirito, the consoles for the upper story project 4.92 ft. beyond the face of the ground story; they are composed of 4 courses of ashlars 5.9 ft. apart from centre to centre, and are spanned by semicircular tunnel vaults (Fig. 223 A). Where for greater projection, the consoles are built of relatively smaller stones, the ashlars are frequently displaced; such consoles were later connected with the bold masonry of the lower story by visible iron bands. On some simple houses of the early period in Via del Mercantino, we likewise find the consoles connected by depressed or pointed arches.

A House in Via Toscanella exhibits a wooden construction entirely translated into stone, the horizontal beams being formed like architraves and supported by stone struts 6.56 ft. long, resting on corbels, these supports being set 7.2 ft. apart, and only the end tunnel vaults having tie rods (Fig. 223 B). I give only their characteristic examples, although many others of similar nature might be pointed out in the city.

The old, large, painted House on Place S. Croce (Palace Antella), whose original plan may be found permanently exhibited among the drawings in the Uffizi, exhibits stone-beam construction without arches between, i.e., one with horizontal beams beneath, where the consoles are 8.55 ft. from centre to centre and stone struts over 6.56 ft. long with sections 1.18 × 0.85 ft.

are employed.[148]

Note 148. Similar constructions with straight stone beams and stone struts on the buildings on Bridge Ponte Vecchio at Florence and elsewhere.

Perhaps Filarete conceived the corbelling on his artisan's house as executed in this manner.

Another mode of supporting projecting stories, which produces an effective architectural motive, is found in a row of houses on Place delle Erbe in Verona, where instead of struts vertical detached supports in the form of columns are arranged. (Fig. 228, E, F; examples from Bergamo).

e. Windows.

160. Form.

Whatever antique art created in the forms of windows, we find again in the Renaissance with certain modifications; also whatever new was contributed hereto by the middle ages was adopted, but translated into the forms of the Renaissance. The basal form is still frequently Romanesque and Gothic, but the detail is like the antique. The straight lintel, the semicircular, as well as the pointed or segmental heads were retained; a new form was scarcely added thereto; trefoil, foiled, ogee, curtain, or recurved arches as internal forms of window openings are mostly foreign to the style. Yet there is also here no rule without exception; a kind of curtain arch is found on Palace Montanari in Vicenza, others on the portals of S. Agostino in Montepulciano, on the Confraternita in Arezzo, etc.

The coupling of separate windows, covering them by a great arch and combining them into one whole was without doubt transferred from the preceding art period, as well as the stone mullion and transom within the rectangular window. (Rome and Flore-
242 nce; Palace Venezia and Palace Gondi). The window enclosure
243 has generally the form of an upright rectangle, although variations therefrom occur. The ratio of width to height in the clear varies between the limits of 1/2 to 1, 1 to 1, 1 to 1 1/2, 9 to 2, and over.

161. The Enclosure.

The enclosure of the window openings occurs in the simplest way by a uniformly moulded band extending around them, subdivi-

subdivided after the manner of the antique architrave (ground story windows of Florentine palaces of the Early Renaissance), or the lower part of the band is cut off and replaced by a separate window-sill belt, on which the profile reappears. Also enclosures with the so-called ears on the lintel with inclined or exactly vertical jambs after antique models continue in use. The repetition of the ears on the jambs is also not excluded.

162. Ornamentation.

The enclosure is enriched by a frieze and a horizontal cap above the lintel, where there may be above the latter ornamental decorations or pediment caps in angular or segmental form. This addition acquires more expression by the arrangement of the consoles on the right and left of the lintel, which support the pediment cap and which frequently have a band-like extension beside the jamb. The enclosures become richer, when to the jambs and lintel are also added pilasters, half, three-quarter, or entirely detached columns, which then support a complete antique entablature with or without pediment.

Returned or broken pediments belong to the Late Renaissance and the Barocco styles, the ogee pediments to the period of Bernini and Borromini. Returns limited to the entablature and leaving the pediment unbroken are likewise a form of the Late period, but they are ornamented by shells or cartouches with good effect. (Compare the windows of Palace Conservators in Rome). Instead of the pilaster, we also find hermes pillars diminished downward, which support lions' heads (compare Fig. 232; window of Palace Cucoli, Via de' Servi in Florence), above these being broken entablatures or small female heads with busts, as shown in a charming way by a window in Via Ginori in Florence.

163. Round-headed and Coupled Windows.

The round-headed windows of the Early period vary in their enclosures from the antique; they either exhibit the wide ashlar enclosures with external painted form and the recurved point at the crown, or strong moulded and decorated bands form the enclosure.(Figs. 224, 225). Coupled windows of this kind either have similar bold ashlar enclosures, furnished with small piers and architraves, from which then rise small round arches with the perforated tympanum slab, or instead of the dividing pier,

of S. Pietro in Perugia (Fig. 228), on which the finest antique forms of details attain to their full rights. The archivolt members of the double window and of the covering arch are carried down completely to the window sill as an enclosure.

The arrangement of the great arched windows in Florentine palaces (Strozzi, Riccardi, Rucellai) has already been illustrated and described in the text, so that there only remains to notice the details, which are shown at larger scale in Figs. 224
244 to 228, and in what way the arch mouldings intersect and how the spandrels are filled, whenever they are not perforated.

164. Execution in Brickwork.

These window motives were already executed in brickwork on the brick buildings of the Early Renaissance in Lombardy and farther south to Bologna. Not easily will more charming and luxuriant details be found elsewhere than here, where the treatment of the basal form of the window also experienced a change, when the middle support gives place to a free terminal in the form of a console. A characteristic peculiarity remains there in the acroterias at imposts and crown, frequently taken at too large a scale, but always finely detailed. Casa Vecchietti, Casa Carraci, Palaces Pallavicini (now Felicini), Fava, and Bevilacqua, in Bologna, present charming examples of this sportively ornamented brick architecture. But still more richly have
245 Filarete and his coworkers or successors treated their painted double windows on Hospital Maggiore in Milan, with the use of marble and terra cotta. The brick architecture of Upper Italy, as well as that of Bologna, celebrates real triumphs, so far as concerns composition, details, and execution. The splendid broad enclosures with cupids climbing in the vine accompanying the refined beaded astragals and egg-and-dart mouldings, together with the monumental filling of the spandrels of the arches with vividly modelled busts, the properly slender marble shafts of the columns supporting the double arches, give a precious architectural treatment to the enclosures within the colonnades

and the blind arcades of the facades.

165. Enclosure of Coupled Windows by Pilasters and Entablature.

But a still more magnificent effect is produced, if these coupled windows are likewise enclosed in rectangular form by an entablature supported by pilasters or columns, to which may further be added wide pediment caps.(compare School S. Rocco in Venice).

166. Window by Sansovino.

Decidedly more charmingly are developed the treatment of windows, when the masters returned to Late Roman models and transformed these into splendid designs of the very highest rank by their refined taste and sense of beauty, by retaining the triple window, whose middle part was round-arched and the side parts ended horizontally with architraves (Fig. 229), a motive that may still be found on the imperial Palace in Spalato, and which Sansovino indeed created with the most refined details on his Library in Venice, where he inserted a keystone in the arch and filled the adjacent spandrels with figures, after the precedent of the Roman triumphal arch.

167. Window by Palladio.

Palladio employed the motive more simply and more effectively, not as the window of a house or of a palace indeed, but on his Basilica in Vicenza, and which there far surpasses in grandeur of effect the style of Sansovino.

This motive has likewise been transformed in a peculiar way by Palladio on Villa Pojana, where a larger arch of ashlars extends concentrically around the inner and smaller one, and the slabs filling the space between the two arches are again perforated by plain round openings.

The same ideas, but translated into richer forms, are found in use in the windows of the hall in the upper story of Palace Vecchio in Florence (Fig. 230); excepting that radiating consoles are inserted instead of consoles, and the entire arrangement is also enclosed by Composite pilasters with the corresponding entablature, producing an ornamental form, such as cannot easily be found again, especially on this great scale. (Fig. 230).

The idea is more modestly expressed on a window of Palace Pucci in Florence with a more beautiful development of the details, the keystone containing a coat of arms, with a cardinal's hat, crozier, and inscribed bands in the spandrels of the arch. (Fig. 229).

169. Other Windows.

A freer treatment occurs on the round-arched window with vertical and horizontal enclosure on palace Puoti in Verona, late indeed, but in a not unskilful style. Below the imposts on each side are arranged hermes supports standing on consoles and pedestals, from which project the forms naked from the hips upwards, that indeed have a returned band above their heads, but they do not occupy themselves in supporting this, but rather play unseemly tricks (Fig. 231), for the male figure looks between his spread fingers at the enticing female figure, and where on another window disdainful male forms stand opposite each other, one of them turns his back towards the observer. Less skilfully are the keystones treated as colossal projecting heads without any architectural transition, like the Etruscan Gate in Volterra.

As an interesting diversity should be also mentioned the window on Via de' Servi in Florence (Fig. 232) and that inserted in the formerly open arched gateway of Palace Pitti (Fig. 233). (Compare Art. 162).

170. Window by Bramante.

The great Bramante employed the round-arched window in a special way by enclosing it within a rectangular enclosure in a very simple form on in one most richly subdivided. The Gothic already sought similar forms in Lombard buildings, and before it, Romanesque art also: the Early Renaissance likewise had the need (Castello in Ferrara, Hospital Maggiore in Milan) of arranging a rectangular enclosure around arched windows. (round and pointed arches). But we must go further back in this case. There might sometimes be structural reasons, that permitted the masters to seek a form affording a better bonding of the voussoirs and the coursed ashlars together, than was the case with the direct intersection of the horizontal stones by the ashlars of the round, pointed, or segmental arches. Such stone-cutting is and remains bad, dangerous at all periods

when employed. It is obviated by the well known ancient Roman
jointing of the voussoirs,[149] or more simply if the adjacent
piece between the voussoir and the regular ashlars in course
is cut in a single piece with the former, as Bramante did, and
before him the Greeks and Romans had already done. We find in
Athens the bonded arch in the vicinity of the well known Tower
of the Winds in Athens, a work of the 1 st century A. D., whe-
re the spandrels already bear rosettes to fill them,[150] and a
further example on the Gate Porta de' Borsari in Verona, where
the perfected "Bramante window" of the Cancellaria in Rome is
completely imitated, though with the difference, that in Vero-
na the detail is executed with shocking roughness. Whether in
248 Bramante's time allied ideas in more beautiful form were pres-
erved from a better period of antique art is hard to say, but
it is more than probable (Fig. 234; Porta de' Borsari, and Fig.
235; window of the Cancellaria).

Note 149. Compare Part II, Vol. 2, Art. 154, of this Handbook.

Note 150. Compare the same, Vol. 1, 2 d edit., Fig. 220, with the reference to Bramante.

171. Closing of Windows.

That Roman antiquity did not stop with closing windows and
doorways by fabrics, lattices of wood and metal, wooden shut-
ters and the like, and that the wooden window shutters in hin-
ged frames and with rather large plates of glass inserted there-
249 in were usual for this purpose in the imperial period, is well
known, also that then metal fixtures for opening and fastening
window, door, and shop shutters, such as hinge straps, locks
with spring bolts, that further the wrought joiner's work, the
mortises and tenons at the joints of wooden parts, the grooves,
the inserted stops, (technical processes already employed by
the Egyptians),[151] were executed, may indeed likewise be assumed
as well known.

Note 151. Compare the same work, Vol. 2. Art. 212.

The storms of the migrations of the peoples scattered these
acquisitions of the ancient world, a later period of quiet and
250 development could again rediscover what the ancients had prev-
iously completed, and the beginnings were again as rude and
like those in long past ages. First internal, then external

wooden shutters, which swung on hinge-straps and pins or on pivots and holes (sockets), like the doors of the ancient Etruscan tombs, fastened by an inside wooden bar, by hooks and rings, or by bolts pushed into holes, shutters in two folds, held together by joint-hinges or by separate bands with links, these are practically the means by which men protected themselves from heat and cold, rain and sunshine, for more than half a millenium; but for arched windows, the shutters, when placed externally, generally extended only to the springing of the arch; the upper portion between the spandrels of the arch remained open.

With this primitive and mediaeval closing of the windows, which always appears as solid wooden shutters with or without small openings for light, and which leave the room dark, if men wished to protect themselves against rain and cold, the Early period of the Renaissance was satisfied in Italy.

In adjacent Florence, bills for windows in the Castle at Caen (1388), in the Hospital Hotel Dieu in Paris (1376), and in Palace Hotel Charles VI (1380), make it certain, that here likewise, there was no other mode of closing in use, and such is also mentioned at the siege of Troyes.(1429).

Window openings for admitting light and to be protected against wind and weather had oiled linen cloth hung before them, or the linen was fitted into the wooden frames on in the open-
257 ings. Thus in the year 1390, the Carthusians in Dijon closed the windows of their chapel with oiled linen cloths, and in the account of the expenses of King John in England (1359-60) are mentioned wood for the windows, nails, and oil of trupentine for making the linen cloth transparaent. Charles VI paid in 1380 money for waxed linen (toile ciree) and nails for the windows in the room of Monsieur d' Anjou. Thin skins (peau de cuir), made transparent by fat, are also charged.

In the 14 th century, the citizens of Paris were acquainted with no means of closing windows other than by oiled linen cloth. According to the accounts of King Rene, there were the same conditions in the Chateau of Tarascon (1447), in the Palace at Aix (1448), in the House of Pertuis (1450), in the Chateau at Redulie (1471), i.e., the closing of the windows

with oiled linen cloth. For the room of Louis XI (1478-81), the accounts of the same King Rene (1479) show payments for oiled paper for closing the windows. This was an improvement in the introduction of light; it was less durable, but therefore more transparent. To strengthen paper and linen cloth against the wind, harp strings and bow strings were drawn through it. This was still practised in the 16 th, 17 th, and 18 th centuries. In the Palace Fontainebleau, even in 1639-42, windows of paper and of glass alternated with each other. The Princess of Montpensier announced even in 1649, that she had in the Chateau of S. Germain a great gilded and painted apartment, yet without glass in the windows! Waxed linen is even mentioned in Bordeaux in 1735 and oiled paper in the Hospital at Lyons in 1740.

172. Glazing of Windows.

Instead of Oiled paper, of oiled linen cloth, and of the skins of animals shaved thin and saturated with fat, glass also occurred in palaces and dwellings. While glazing is found but sparingly during the entire 15 th century and for 50 years later, it became tolerably common in the 16 th century (1550), but it should not be forgotten that the old processes still continued in use. Therefore it was still always costly. The demand for pure and bright daylight in the rooms caused the omission of the stone mullions and transoms to permit freer admission of light, the colored glass likewise disappearing, and at the end of the year 1650, the use of white glass alone in living rooms was established. The complete glazing proceeds but partially; the small disks were in time succeeded by the larger ones, i.e., the older roundels and quarries were supplanted by the rectangular pieces set in leads and with on without facets.(Fig. 236).

In the work mentioned below,[152] is published the colored representation of a sleeping room of the 15 th century, whose original is to be found in the Museum of the Louvre in Paris under the title of "The Annunciation." It shows a rectangular window without mullion or transom, from which about 4/5 of the light from the window is shut out by two-fold solid and nailed wooden shutters; one of these is also divided in height, while the upper fifth of the window is glazed with quarries set in leads,

(Fig. 237 f), which furnishes a faithful and incontrovertible representation of the mode of filling a window of that time, in which complete glazing had not yet been introduced. This case may then be transferred to the arched window, concerning which we have already stated, that the shutters only extended to the impost, and that the upper part remained open to receive glazing later.

Note 152. Havard, J. Dictionnaire de l'Ameublement et de la Decoration depuis le XIII Siecle jusqu' a nos jours, ouvrage couronnee par l'Academie des Beaux Arts. Paris. n.d. Vol. 1, pl. 41.

252 In the Cathedral of Rheims is a tapestry of the 15 th century representing the Birth of Christ, in which is shown glazing with quarries. From the same time comes a picture by Pinturiccio (1454-1513) in the Library at Siena, on which roundels are painted, and in the picture "A Lesson in Anatomy after the medical essays of Jean Ketham" (Venice, 1493) are roundels again, and such are given in the painting by Ambrogio Borgognone (d. 1524) in the Certosa near Pavia. Both kinds must therefore have been employed beside each other at the same time, when linen cloth, paper, and skins of animals were disused. But the small round cut flat glass disks set in lead did not alternate with the cast roundels with a knob at the centre.(compare the glazing with roundels and with square quarries in the windows of Palace Doge at Venice, on buildings in Vicenza and in Florence, in Fig. 236).

But mediaeval nailed shutters for closing windows are usually found in even the Early Renaissance, for which we have tangible proofs, indeed on one of the most important monuments, Palace Strozzi in Florence. There in the upper story are still preserved two of the old shutters on the rear facade of the Palace next the small Place. But they are not made by the rough method of grooving pieces together, or cut from a board, but are
253 divided into frame and panels after the antique system, the one having five and the other three panels in height, when the framing is beset with three rows of iron nails (Fig. 237 hU. On Plate 435 of the drawings publicly exhibited in the Uffizi, the painted representation of the still existing Palace Antella in

Florence exhibits the old closures of the windows, which consist of partly sashes in folds for opening, (Fig. 237 g, i), partly of wooden shutters in which are mut small square holes for admitting daylight into the interior.(Fig. 237 e).

Colored and white glass disks set in leads are retained in the 15 th and 16 th centuries with and without shutters and in the forms of round and lozenge quarries, as represented in innumerable miniatures and wood cuts,[153] but give place to larger pieces
254 set in wooden sashes, and in the second half of the 17 th century we enter the modern era of the window; at this time the window was also freed from stone divisions and all superfluous woodwork, and the number of sash-bars was reduced.(Fig. 236).

Note 153. For example in Lacroix, P. Moeurs, Usages et Costumes au Moyen Age et a l'Epoque de la Renaissance. Paris. 1671. The illustrations referred to are chiefly derived from the 15 th century with a few from the 16 th also.

Maria de Medici made in Palace Luxemburg the first experiment with glass with facets set in silver bars,[154] but this was little employed on account of its great cost.

Note 154. Such still existed in the Palace at Mannheim a few years since, but set in wooden sashes and having dimensions of 1.08 by 1.41 ft. with quite flat facets 0.98 inch wide., but owing to ignorance, they were destroyed during repairs. -- In the Palace at Bruchsal are rectangular pieces without facets (not indeed the old ones) 1.18 by 0.87 ft. in dimensions, set in wooden sashes on the principal facade, and in the great stairway. vestibule are set in gilded leads.

These rectangular white panes, set in wooden, iron, or lead bars, retain supremacy in varying dimensions until the middle of the 19 th century, when these still larger panes with and without leads must likewise disappear, which in the most recent period have been again exchanged for the small leaded glass of Louis XVI, after the modern second poem of glass roundels has ceased to be heard.

Thus the old becomes new again, and to those among our architects and patrons, who participate therein todan, we wish humor and cash!

The size of the glass formerly fixed its value, and the beg-

beginning of the production of large sheets was in the making of mirrors. Therein was first the endeavor to produce plates of glass that could reflect the human figure in its entire magnitude, like those mentioned by Seneca in ancient Rome.

Italy assumed the leadership in this; Venice had the monopoly of the manufacture of large plates of glass and supplied them to the entire world. But what men then understood as "great" would not be so esteemed now. In the inventory of Cardinal Mazarin is mentioned a Venetian mirror 27 × 22 inches (German), and one 50 × 65 inches was in 1759 still regarded as a wonderful work. A few years later, mirrors were already produced up to 78 × 47 inches, but the largest framed mirror possessed by Louis XIV measured only 53 × 34 inches. How valuable they were considered is shown by the fact, that the republic of Venice believed itself to have done a great thing in presenting a mirror to Maria de Medici on the occasion of the birth of Louis XIII. The value set on the manufacture is established by the calling of workmen from Murano at high wages by Henry II in the 16 th century.

But mirrors played a part in the decoration of the apartments of the great and the rich. Thus Catharine de Medici (1589) had a cabinet (Cabinet of Mirrors), which contained 119 Venetian mirrors. Marie Antoinette had in the Trianon a bathroom with painted mirrors and a border "entirely in glass." The Late Renaissance, -- Barocco and Rococo, -- by preference made use of ornamentation by mirrors, frequently in the most charming, original, and happiest manner. On this side of the Alps are to be mentioned Palace Favorite near Rastatt, Palace at Würzburg, Palace in Pommersfelde, etc.

But with the system of glazing were changed the wood construction of the windows and their fastenings.

255 The account books of Fontainebleau (1586-1639) speak of opening leaves and distinguish between sash in one or two folds, as well as sliding windows from 1691-2 (now called guillotine sash); but they likewise contrast fixed with movable sashes. Sliding windows with sash-bars were made of both iron and wood. (On the City Hall in Rouen, for example, the glass is set in iron sashes. On the sliding windows and the hinged leaves,

there also occur in Italy movable hinged folds, as shown on Palace Antella at Florence. But the movable fold is placed outside the frame, which was already employed for shutters with a fixed glazed upper portion.

With the larger panes there are inside shutters used for security, folding readily into the jambs of external walls of ordinary thickness, and which received an artistic treatment , (Fig. 238), like the other ornamental and structural wooden portions of a room.(Doors, wainscot, paneling).

A practical and perfected execution was attained by the windows, window shutters and their fixtures only in the late period of the Renaissance, in the times of the Barocco and the Rococo, and only in a way, without any mediaeval tendency, especially after this had entirely freed itself from that. Well considered in even the smallest detail, taking into account all peculiarities of the material concerned, allowing for all possibilities, these innovations in the internal architecture rise to become model works and dominate it in general and detail forms for 250 years until this hour. And no modern dwelling can dispense with them, be it kept within whatever style it may; for no one of understanding will wish to return to the system of closing the windows of mediaeval dwellings for love of a stylistic caprice, unless he is willing to say to his friends, as Madame de Maintenon once said to Duke de Noailles (1705); "If I should remain long in the King's chamber, I should become paralyzed; neither a door nor a window closes. One is buffeted there by a draught that reminds me of American hurricanes." It shows a shocking ignorance of the development of affairs, blindness and hateful ingratitude to the antique world and the Renaissance; when anyone prints today:-- "In all arts and in handiwork, almost all problems were solved in the middle ages, and all types were created."

173. Fixtures.

Sash frames and bars (where the latter were not made of metal) were always wrought from hard wood (larch or oak), the shutters in mortised work after the antique method, and the fixtures of the windows and shutters were of iron or bronze. (Brass).

Movable folds frequently still show in ordinary buildings fixtures with angle stops (but at right angles) and pivots, but in better buildings are always bands or the antique hinge-straps or iron or brass, where the hinge-pins project in view, while the straps are let into the woodwork and fastened by nails, whose small heads project and are frequently plain, sometimes even gilded. For thin wood, we likewise see screws employed (since 1650) in fastening parts of the fixtures. If the leaves are large, there also occur with the bands the sunken angles
256 (so-called sham-hooks) at the angle joints of the wooden frames.[155]

Note 155. Well preserved fixtures of this kind are yet in the Palace at Bruchsal, where all parts are made of plain brass, while the woodwork is painted with an oil color.

Fastening folding windows and their blinds was effected by small and simple arrangements of bars (handle and lever) or by sliding bars of the most diverse kinds (espagnolette and latch bolts). Handles and knobs frequently received a rich decorative treatment by the aid of gilding, and the rings of the bands as well. Shutters were mostly fastened by hinge-straps and latches, whose handles were developed on the inside as suspended movable rings, in order to require the least possible free space between the jamb and the shutter. These internal shutters were already taken into the domain of the general decoration of the room and were accordingly painted, gilded, and covered by ornaments.

174. External Windows.

To afford greater security against draughts of air and extensive cooling of the surfaces of the glass panes during the cold season of the year, recourse was already had in the 18 th century[156] to movable external windows opening inward (winter or double windows), when the permanent windows were made with a rebated ogee joint, the external ones having a simple ogee joint.[157] (Fig. 238).

Note 156. See Blondel, J. F. Cours d'Architecture. Paris. 1777.

Note 157. From Blondel, Vol. 6, pl. 132, where the arrangement of this triple closure is given.

f. Entrance Doorways.

175. Principal Entrance Doorways.

The principal entrance doorways were subjected to similar changes in their treatment from the simplest to the richest as were the windows. Florentine palaces of the Early Renaissance (Strozzi, Riccardi, Pitti, Gondi) as a rule exhibit as enclosing the doorways, simply profiled and broad archivolts, frequently semicircular at top, with a ratio of from 1 to 2 to 1 to 2.5 of clear width to height of opening, and avoiding any
257 further ornamentation. On Palace Rucellai are rectangular doorways; on Palace Vitelleschi in Corneto (Transition style) the entrance doorway is likewise rectangular and is crowned by a pediment resting on consoles, whose form is given in Fig. 15 on account of its restrained and modest details. Then follow the richer portals of the Lombard Early Renaissance, overloaded with ornaments and figures, enclosed by pilasters and antique entablatures, a magnificent example of which is given by the portal of the old Palace Medici, now in Castle Vecchio at Milan. (Fig. 10).

Likewise the abundance of small portals of houses in Genoa should not be forgotten, sometimes as delicate and refined in detail as Bramante's windows and ornamented by figure sculptures, sometimes enclosed between pilasters or candelabra-like detached supports with the corresponding entablatures. In Lucca, the beautiful entrance doorway on Palace Archbishop (Fig. 239) deserves mention as a charming work of the Early Renaissance.

Pilasters again give place to half, three-quarter, and full columns (Doria-Tursi and Durazzo in Genoa, Sciarra in Rome, etc.), and the single columns to those doubled with figures placed thereon (Palace Spinola in Genoa); angular and segmental pediments with reclining figures (Palec Gambaro in Genoa) rise above the horizontal entablatures, and finally the portal columns again become merely supports for the balcony arranged over the doorway (Palace Franzone in Albaro).

But instead of the columns first occur hermes caryatids, either in limited form, as on Palace Cippola in Brescia (Fig. 240), or in a freer and more animated manner on Palace Durazzo-Brig-

Brignole (Via Nuovissima) in Genoa, with half-figures growing out of consoles, supporting in a stooping pose with raised arms the portion of the entablature on which rests the higher balcony.

258 Unfortunately female hermes caryatids were employed on the garden portal of the Archiepiscopal Seminary in Milan (Fig. 241), recalling rather the idea of the figures on the Incantada in Salonichi, rather than freely arranged decorative members after antique models. Instead of hermes figures, there also occur stumpy muscular complete figures supporting a balcony, which stand on high pedestals on right and left of the doorway of Palace Barzellini in Bologna; as unoccupied figures like guards, they are placed at the portal of Palace Rangoni in Parma (Fig. 112).

Grandly treated is the doorway, if a portico be placed before it, which has a horizontal entablature on columns and opens with an arch at the centre, as on a building in Perugia (Fig. 242), or on the Mercato in the same place, where the entrance into the arched portico is especially accented by columns placed before it. (Fig. 243).

This motive is translated into grandeur and is greatly effective at the passage through the portico of the Uffizi in Florence with the triple window over the arch and the figure standing there, as well as the two reclining forms. (Fig. 244). Vignola returns to simplicity in the portal of his Palace in Caprarola, which we reproduce in Fig. 245 from his original drawing, in which are shown the doors, with the transom and iron grille above them.

The decorative treatment of a portal must be designated as erratic, such as shown on the so-called Porta Bombardiera in **Verona**, where the columns at the sides are shaped like vertical cannons, which stand on the calfskin heads of drums and are covered at top by a plate, on which mortars rest as supports of the balcony. Weapons, trophies, helmets, powder-horns, and trumpets cover the adjacent shafts of the pilasters and the architraves of the doorway, while the balustrade of the balcony consists of small gun-barrels alternating with trophy-pedestals.

But the doorway of House Casa Zucchero in Rome must be regarded as a jest, which is represented as the widely opened mouth

of a devil's brat, and a long nose hangs down over the round arch as a keystone.

176. Doors.

/Portals built of brickwork either exhibit simple members like the windows, or pilasters and caps of terra cotta in large pieces are also built there, as already referred to.

In harmony with the other structural means found to be for the security of the occupants of the house or palace, such as
259 massive ground story walls with few openings, windows high above the sidewalk (except for shops), beginning of the residence of the nobleman in the upper story, gratings on the windows in the ground story, closure of windows by heavy oaken shutters beset with iron nails, etc., -- the doorways next the street experienced no further artistic transformation, particularly during the first period of the Renaissance, when men employed the same precautions for security in the unsafe polotical conditions of the time, which the middle ages had introduced.

We first find strong wooden doors, covered by iron plates, fixed on the wooden portions by nails and rosettes, in which a
260 certain ornamentation was attempted by alternation and repetition. The leaves of the doors hung on heavy bands and pins; the fastening was effected by simple iron bolts (Fig. 246 e; from the door of a Palace in Genoa). Visitors had to gain admission by striking with the metal door-knocker[159] (iron or bronze) to call the attention of the porter.

Note 159. Leaves of doors covered with iron plates are still found on Palace del Municipio, on Palace Franzoni in Albaro, and on Palace Gambaro, where a small entrance door is formed in the great leaf of the door.

After the style of the old window shutters on Palace Strozzi were also those doors constructed, which permit the woodwork to appear externally, where recourse was had to the antique framed work, the panels not being made large, but the framework being strongly framed and beset by rows of nails (with round and pointed heads), for which a model may be found on the framework of the bronze door of the Pantheon. As an example of such simple doors, Fig. 246 a may serve, which was constructed in the monastery buildings of S. Lorenzo in Florence.

A perfected development occurred later, in which the plain panels were filled with richly carved rosettes, while the nailing of the framework was retained. (See Palace Guadagni at Florence, where the leaf of the door shuts into a frame beset by thre rows of nails, as the section in Fig. 247 shows; further the similar and beautiful doors in the ground story of the Uffizi, wher the nail heads are pear-shaped and a grated transom is placed above the leaves of the door).

Instead of rosettes, there are inserted painted panels on the courtyard doors of the Palace in Pienza, bearing a flower and a small crescent at top, but retaining the nailing of the framewor

But this kind was again changed; instead of it occurs carved framework, producing the most beautiful treatment of Renaissance doors, of which we reproduce in Fig. 239 that on Palace Archbishop in Lucca as the most prominent example. These strong forms are contrasted with the bizarre forms of the Barocco in the late period, whose beginning already appears in the hall doors of the Uffizi, which bear the arms of the Medici.

261 The Italians employed in France, who introduced the new archi-
262 tectural style there, continued while far from home faithful to
263 the ground principle, to not lavish too much ornament on the
264 street doors. Under Francis I were firmly retained the nailed framing at right angles with painted panels (House in Orleans), and the same is true under Henry III (House in Toulouse), even if between them also occur under Henry II leaves enclosed by small columns House in Narbonne). The structural and ornamental treatment first begun with Louis XIII, increased until under Louis XV, to again return under Louis XVI to the supposedly classic. Door panels with pediment caps, long panels rounded at top and bottom, perforated panels filled by carved wooden bars or iron gratings, an alternation of round, oval, vertical and transverse panels, adorned by medallions, delicately carved figures and heads, garlands of fruits, carved panels with cartouches, masks and the like, occur instead of the severe architectural forms, lighter construction instead of the doors for offense and defense, merely desiring to show elegant closures to prepare those entering for the likewise ornamental interior.

Note 160. See beautiful examples in Daly, C. Motifs Historiques d'Architecture et de Sculpture d'Ornaments. Vols. 1 and 2. Paris. 1869.

265 177. Door Frames and Metal Work.

In richer examples the leaves of doors shut into separate wooden frames, which frequently project 2 inches or more as wide frames into the clear width of the doorway; but they frequently in the antique way shut directly into the stone jambs. They are hung thereto by pins and short bands; but the fixtures required for closing or opening the doors are never left visible; in no case do the latter occur in an obtrusively ornamented art form, nor do the simplest disturb or cross the surfaces and mouldings of the woodwork at all.

The woodwork was during the early period left in the natural tone, merely being oiled and varnished, but was painted with oil colors in the period of decadence. Where metallic coverings occur, these were necessarily painted in colors on account of rust. Raised ornamental patterns on plate coverings are to be found in Genoa, for example.

178. Door Knockers.

In all phases of the style, the door-knocker continued by preference an object for artistic treatment, whether it was made of dull iron or the more valuable bronze. Male and female
266 figures of deities, forms of animals, (Neptune with sea-horses or dolphins), fanciful beings, masks and plant-forms, were combined into charming and very prominent objects of the minor arts. Venice, Verona, and other cities preserve a wealth of such peculiar inventions of Renaissance art. We give two simple examples from Rome, one from a private house, the other from Hospital S. Spirito. (Fig. 248).

g. Niches.

179. Form.

Besides windows, where the axial distances are greater, either rectangular recesses, segmental or round-arched niches animate the window openings, chiefly intended to receive figures, but these did not always reach their places, just as is now the case.

Palace Bartolini (now Locanda del Nord) in Florence exhibits

on the four piers of its facade with three windows with this motive, that the Renaissance borrowed [161] from Late Roman art, executed in a systematic and effective manner.(Fig. 249). The shell is employed as a characteristic motive for its decoration (exactly as in the antique period), its base being either at the centre of the semicircle or at the crown of the arch, from which it develops ribs, whose ends produce in the front elevation small projecting semicircles (Fig. 250; shell from S. Andrea in Rome). But we also find this charming architectural motive again upon wide intermediate piers and broad angle piers; thus, for example, on Villa S. Columba in Siena, on the piers of the Uffizi in Florence, on the angle piers of the Mercato there, then with a specially wrought standing place for the figures. The imposts of the niches with shell decoration are accented by a plain band or by richer mouldings.

Note 161. Compare Part II, Vol. 2, Art. 264, of this Handbook.

Rectangular flat niches are also tried as suggestions on the window piers of Palace Pandolfini, while they are deeply recessed on Palace Bartolini, perhaps intended for the reception of ornaments.(Trophies or decorations). They have more the character of paneling on Palace Pandolfini.

The further animation of the wall surfaces by pilasters, columns, and caryatids, has already been considered for palaces and houses, and the construction of the facade surfaces of dressed ashlars, rough stones, and of bricks, its covering with majolica tiles or stucco, its decoration by sgraffito, shaded and fresco painting, its animation by stucco ornaments, mosaics, and by veneering with colored marbles of all kinds, have all been mentioned in Arts. 37 to 43, so that we have only to refer to them here on account of their combination.

h. Balcony.

180. Balcony.

The balconies, which lend further relief to Renaissance facades, either extend along the entire facade of a building, or are limited to certain parts, or to merely a window . Palace Pitti has the continuous balcony on both its upper stories, and Palace Uguccioni has one of these in the second story.

These balconies are constructed by the projection of a cornice beyond the lower wall and by the recession of the wall of the upper story, whereby a not too strongly expressed separation of the different stories from each other is produced. A greater degree of safety in the use of the balcony slab has a bearing on the solid wall of the lower story (Fig. 251). Even greater security results from the but slightly projecting balconies on Palace Pandolfini, where they rest entirely on the masonry.(Fig. 252). Such arrangements can only be executed on thick walls; with those of less thickness, recourse must be had to the projecting balcony, like that common in the entire South and which has also become naturalized with us in the North. This consists of stone slabs usually projecting 2.95 to 3.28 ft., the supporting consoles and the balustrade. The slabs generally correspond in thickness and profile to the belt between the stories, are smooth or have shallow coffers on the underside, (Palace Labbia in Venice), and according to the extent of the balcony, they are supported by at least two or more consoles frequently coupled in pairs.(For example, of 6 pieces on Palace Labbia just mentioned).

181. Balcony Supports.

The supports of the balcony are in their artistic forms either to be referred to a preceding wooden construction, to stepped and corbelled wooden beams, that terminate at the ends in the customary volute form, as shown on the roof cornice of the
268 Bigallo, on the roof of the facade of the Cathedral in Pisa,
or they are composed of large volute consoles, especially employed by the Late Renaissance.(Fig. 254). The consoles or projecting beam ends were also in an effective way supported by columns or caryatids, when the balcony was placed over the entrance doorway, as already referred to in Art. 175.

182. Balustrade and Railing.

Following mediaeval tradition, balusters during the Early renaissance were made of stone and in the form of little columns, which were placed in a definite arrangement with angle and intermediate pedestals and were finished by a heavy moulded cap; they then almost invariably stood directly on the balcony slab without the interposition of a special plinth. Their height

was usually 3.28 ft. or even more. The little columns sometimes belonged to the Doric, sometimes to the Ionic or Corinthian order, the shafts being smooth or fluted.

The little columns gave place in the time of Giuliano da Sangallo to the so-called balusters, a form of free support peculiar to the Renaissance. Nothing like it in antiquity nor in the middle ages. Antique candelabra forms are contained in it, but they are employed in a different sense. They exhibit sometimes an appearance of striving against the load, sometimes that of being compressed by it, or both of these extend outward from a neutral middle portion, one directed upwards, the other downwards. Like columns, they also belong to different orders. D'Aviler distinguishes between Tuscan, Doric, Ionic, Corinthian, and Composite balusters; his countrymen subdivide them into "en piedouche, cannele, a double poir, a ceinture, a pans, rustique, en urne, a retours, en vases." Besides those of round section, there also occur others of square or rectangular section; compressed and extending forms are frequently employed on Venetian buildings beside each other, as well as those less happily ornamented by masks, for example, on Palace Pesaro in Venice, and besides the simple and plain treatment of the surface, according to the nature of the material, there is found the richest decoration of the different parts of the baluster. Instead of architectural supports, free forms also occur for the same purpose.

Perforated balustrades between the stone pedestals as parapets are shown by the balcony on Palace Contarini in Venice, and a parapet with decorated slabs, on which weapons, chimeras, Medusa's heads, etc., are sculptured in strong relief, appears on
269 the balcony of Palace Cippola in Brescia.(Fig. 255). The small balcony on Palace Cancellaria in Rome has similar parapets of solid stone slabs with sculptured weapons and ornaments.

A balcony railing entirely made of iron with beautiful workmanship exists on Palace Bevilacqua in Bologna.(Fig. 167). The balcony is arranged at the angle of the building with a view along the two street facades, with the use of a diagonal support and a small exit doorway, is found on Palace di Diamanti in Ferrara. The pedestals of the balustrade frequently receive

special ornaments, for example in Venice crouching lions, a motive borrowed from the middle ages.

j. Bay Window.

183. Dissemination and Examples.

Bay windows in pravate houses are mentioned in Grecian and Roman antiquity; Arab architecture made the most extensive use of these projections, which animate a facade more expressively than the balcony. Whether and how widely the Early Renaissance employed these structures is now hard to say; that care was taken to remove them, wherever existing, has already been stated and the reasons for this given. The architecture of the grand style could not indeed begin too commonly with this addition, which was such a favorite in the late German middle ages and in the German Renaissance, and which has today come again into honor in more frequent use, though not always improved in design, in all historical and unhistorical styles.

On the smaller buildings and with stories not too high, the bay window on the exterior will always remain an effective piece of decoration, and how the Italian masters may have done in given cases may be shown by the well known pretty bay window in Dijon.(Fig. 256).

As a bay window of the good period of the Renaissance may be taken in Florence a moderately large open projecting structure, but which does not project freely from the facade, but is rather placed in a sheltered location at the reentrant angle of two buildings. It rises on projecting stone beams with a balustrade on two sides and a stone column at the angle, which receives the wooden architrave and coffered ceiling extending from the external walls. A small door in the wall permits access from the house to the bay window; above the doorway itself proudly appears the arms of the Medici carved in stone. It is a well known small architectural fragment, that is indeed to be found in most sketch books of architectsvisiting Italy, and which was in recent times made known by Gnauth in the work here mentioned.(Raschdorff).

At the time of the carnival, the balconies of the palaces on the Corso in Rome were and still are transformed into bay windows by erecting on the stone balustrades of the balconies pret-

pretty glazed and roofed wooden structures, which provide the occupants and their guests with a protected position during the duration of the carnival amusements in the street.

Similar to these are likewise the two still remaining covered balconies in Ferrara, on the Castello and on Palace Roverella. The bay window on the latter was indeed not a work originally designed for the stately brick facade subdivided by pilasters. For the entire width of the wall between two pilasters, it projects in the form of a half octagon above the main entrance portal, recklessly intersecting the beautiful terra cotta frieze and the architrave between the second and third stories. It is constructed of woodwork painted brownish-yellow; the angle supports are formed like small Corinthian piers, the interspaces are filled by large glass windows, the lower part contracted in ogee section without any decoration of the surfaces and
271 painted the same color as the wooden portion; the hip roof is not very steep and is covered with smooth metal painted Slate-gray; at its apex stands a bronze colored eagle with extended wings. The exterior appears to have been based on impressions received on this side of the Alps;[163] it might just as well exist in the Tyrol or in Nuremberg. Concerning the bay windows on the Palace in Ferrara, see Art. 216.

Note 163. Published in Müntz, E. Histoire de l'Art pendant la Renaissance. II. Italie, l'Age d'Or. Paris. 1891. p.423. (With the incorrect location "Florence" instead of "Ferrara."

Not on houses, but on princely palaces, have further examp-
272 les been preserved, and indeed on Palace Ducal in Urbino. Between the round towers of the narrow facade, an open bay window extends through four stories, showing a closed substructure in the ground story, but open above this and spanned by semicircular tunnel vaults, its facade ornamented by Corinthian columns with perforated balustrade inserted between them. A volute cap with an eagle crowns the uppermost story above the antique-like principal cornice.(Fig. 293).

A bay window resting on consoles, with richly decorated parapet, angle and middle pilasters, and an ornamental main cornice, but only intended for a single story, was executed on one of the longer facades with such noble details and in such happy

proportions, that it may be mentioned as a model and as characteristic of the style.(Fig. 257).

k. Loggia.

184. Dissemination.

As another architectural motive serving for the same purpose should be mentioned the loggia. It affords more space for an assemblage of persons, an absolutely secure standing place, and protection from rain and sun. It was already in Venice during the middle ages a favorite architectural arrangement and forms a characteristic motive on the Venetian palace and house of that period, as well as during the entire duration of the Renaissance and till this hour. It must have made its way from Venice to the rest of Italy, for it then enjoyed a constant preference in especially the villas in Tuscany and likewise in Southern Italy, also reappearing on the largest palaces, for example, Palace Farnese in Rome. One is constructed in a modest yet expressive way on the Vigna di Papa Giulio outside the Gate Porta del Popolo in Rome.(Fig. 158).

273 The open loggias of Tuscan palaces, built like a story, must not be confused with it, for on account of their elevated position, these have nothing to do with the purpose of a balcony or a place of observation for enjoying the life of the street.

The loggia here mentioned must be taken to be a protico before and connecting the best living apartments next the street.

l. Balustrade and Attic.

185. Balustrade.

In both public and private buildings, the facade always terminates in height with the principal entablature; a stronger accenting of the upward ending was frequently sought, like a dying out of the masses. Fra Giocondo sought to accomplish this on his Palace della Ragione in Verona by placing free statues at regular intervals, which had already been tested on the main cornice of the middle aisle of the Cathedral in Siena. The arrangement looks rather shabby. By placing a balustrade, consisting of base, pedestals with interposed small columns or balusters and a continuous cap, above the principal entablature, the upper termination becomes more effective and imposing, and this may then be heightened by placing free figures on the pedes-

pedestals, by which is produced an effect similar to that attained by Gothic architecture by the setting of finials. Compare in this sense the upper endings on Palace Communale in Brescia, on the Basilica of Palladio in Vicenza, on the old Library of S. Marco in Venice, and others.

186. Attic.

But the closed attics of the Roman triumphal arch always remains the most expressive ending of a monumental structure; it becomes more imposing by placing figures before it and by the arrangement of reliefs and tablets with inscriptions. Its effect is again lessened by the insertion of windows, even if this occurs in a very modest way, and is weakened, where the enclosures of the windows are too strongly expressed. The termination is accented to excess, if with or behind the balustrade there be arranged a low story for use, as frequently is the case on the palaces of Palladio, when the balustrade must give place to the solid wall with windows.(Palace de Porti, Palace Valmarana, in Vicenza). A higher, recessed attic story is constructed on Palace del Monte in Bologna. Another kind of superstructure with battlements above the principal entablature on Palace Venezia in Rome has already been mentioned (Art. 100), which is executed in an energetic way also on Palace Malagutti in Bologna, but not for esthetic or practical reasons of use, rather for defense in case of political strife in the city. This terminal motive is doubled, when above the windowless attic is also placed a balustrade, as occurs on Fountain Trevi in Rome,

m. Pediment and Belvedere.

187. Pediment.

The antique pediment scarcely appears on the dwelling in the good period of the Renaissance, the late masters first employed it, but with a certain eccentricity. Almost none of the villas of Palladio, nor of his palaces either, is to be conceived without one of these, not indeed merely over the porticos, but above certain parts of the building, supported by columns or rising from the plain wall surfaces. Palace del Tribunale in Bologna, Palace in Caserta, some buildings in Milan, Villa in Poggio a Cajano over the portico with columns, and Palace Contarini in

Venice over the loggia, etc., exhibit them, but mostly in a very modest way.

The tympanum is then commonly ornamented by a great coat of arms with foliage and scrolled bands, while the three angles of the pediment (two ends and the apex) are emphasized by free statues, especially by Palladio.

Church architecture usually retains the pediment as a most expressive motive.

188. Belvederes.

In the sky line of the dwelling, the loggia-like structure extended above the roofs, the loggetta, also frequently correspond to the belvedere. On a closed substructure, that projects above the tile roof and is of rectangular or square plan, stand square masonry piers connected by plain arches or by architraves and they support a low hip roof, thus forming a room open on all sides, which serves as an observatory, or frequently as a drying room or for housekeeping purposes. The belvedere appears to have been considered an indispensable addition to villas. An artistic form appears on Villa Lante in Bagnaja, on Villa Medici in Rome, etc., and a plainer form on the two country villas in Bellinzona and in S. Gervaso near Florence.(Figs. 179, 181).

But the belvedere may also form the termination of the wall enclosing a garden, as shown by a charming example on the street outside Gate Porta Pia in Rome.(Fig. 259).

n. Chimney Cap, Dormer Window, and Roof Covering.

189. Chimney Cap.

Another addition above the roof is formed by the chimney cap, though this is of doubtful artistical value. They are and continue to be a necessary evil for flat roofs and best retain their merely useful form, which men are satisfied with in almost every case. An artistically imposing treatment, which occurred
295 during the French Renaissance, retaining the high mediaeval roof was forbidden to the Italians, and what they undertook in this direction was of not much value. Vignola built a chimney with a cap in the Villa Papa Giulio near Rome, which Letarouilly firs made known (text, p. 454); Serlio gave others (Book VII of his work on Architecture) of square, octagonal, and circular external forms, where the smoke sometimes escapes from the apex, some-

sometimes from the side openings; he expressly says of them; "sono al costume d'Italia." but he says of another somewhat strangely constructed one, that it "is"alla Francese anzi io non ne vidi mai simile." We give some of the former in Fig. 260. Rubens, in his work on the Palaces of Genoa (Palace Spinola or Prefettura), gives representations of chimney caps above the roof, whose beauty must likewise be considered doubtful. The most remarkable of these are also shown in Fig. 261. G. M. Urbani de Gheltro (1892). An entire pamphlet on Venetian chimney caps with the addition of 320 drawings by Luigi Lonza. According to the forms, there are distinguished:-- la Campana, Campana schiacciata, Forchetta e il Tridente, le forma Classiche, le Mostuosita! Truly a pretty collection, from which a selection is to be found in Fig. 261.

190. Dormer Windows.

Dormer windows are variously explained in Serlio's Book VII, but always only in connection with steep roofs; hence these manifest a Frence character throughout.[167]

Note 167. Everything necessary was said concerning dormers in Art. 124.

Dormers have a square or rectangular window opening; the enclosure is plainly moulded and supports an angular or segmental pediment cap. Round-headed windows in rectangular enclosures with segmental caps were likewise constructed.[168]

Note 168. See Serlio, Book VII, p. 163.

191. Roof Covering and Form.

The vaulted and externally plastered roofs of the small houses in the South (vicinity of Naples, Capri, etc.), the low antique red tile roof with flat and concave tiles, the covering of plane roof surfaces with sheets of lead (Venice) and copper, the covering of the surfaces of vaulted roofs with the same materials (Cathedral in Florence, Pistoja, S. Peter's, Basilica in Vicenza, etc.); the defective method of conducting off the water, the omission of collecting gutters on cornices of stone or wood, the covering of strongly projecting belt courses with tiles (Uffizi in Florence) set on a bed of mortar, -- these have already been treated and are merely repeated here on account of the general description.

192. Heraldic Ornament.

An ornamental addition of importance consists of the massive stone shields of arms of distinguished and princely families on residences and public buildings. Everyone took care that his name should be transmitted to posterity in a monumental way with the building erected by him. In the affixing of the arms of families, the Renaissance followed a mediaeval custom, which was in that period expressed in a more restricted manner, but was more freely conceived and utilized in the new art, and was especially embodied at a larger scale. The plane or slightly swelled, elongated triangular shields with the point downwards disappeared and gave place to more flexible forms; tilting helmets with spreading ornaments (beautiful examples are on the vaults of the Bargello and of the Loggia dei Lanza in Florence) vanish, and in their place appear cardinal's hats with conventional symmetrically arranged tassels, the papal tiara with the massive keys of S. Peter, or open ducal coronets and the cap of the Doge of the Republic of Venice. The oval form, surrounded by rich cartouche work, was the preferred form of shield.

Apparently suspended from stone consoles (of volute form) with flying bands, the shields of arms decorate the angles or surfaces of buildings.(Compare in Fig. 262 the massive papal shield of arms on the angle of the Palace Archbishop in Florence).

193. Metallic Decorations.

As metallic decorations, mostly of painted iron but elevated to art-works by artistic hands, we have to mention on residences, especially in Tuscany, torch and banner holders, tie-rings, holders for receiving window gratings, and the lanterns.

The lanterns already on Gothic buildings and on those of the transition style form a portion of the smaller ornamentation of the facade, as shown by that in Fig. 263 from Palace Vitelleschi in Corneto. What the improving period of the Renaissance made of this Gothic primitive form, or how it was transformed into an art-work, is shown by the lanterns of Palace Guadagni and of Palace Strozzi mentioned in Arts. 91 and 93. We give an illustration of the latter in Fig. 264 and in Fig.

265 one of a standard holder with a tie-ring; the latter may be designated a masterpiece of the smith's art, beside which can only be placed similar pieces in Siena.

Somewhat inferior, yet interesting, do the holders on Palace del Podesta result. (See Fig. 166). Of the gratings on the windows of Palace Vitelleschi, a representation is given by the corresponding illustration in the work mentioned in Note 7(p.13)

p. Internal Architecture.

194. Internal Doors.

The doorways in the interiors of residences always form vertical rectangles of the proportions of about 1 to 2, sometimes somewhat more, sometimes rather less. The enclosures are either plain or subdivided and profiled in the style of external window enclosures, thus having antique-like architrave members with or without ears (for example; with ears on the doorway architraves in the Hall of Leo X in Palace Vecchio at Florence), of tolerable width, which frequently amounts to 1/4 or 1/5 the clear width of the opening of the doorway. The enclosures are more richly treated with accessories like those mentioned for windows, by consoles with horizontal or pediment caps, both often merely painted on beside the architraves in relief, (Doorway at the end of Raphael's Loggia,), or they are enclosed by columns with antique entablatures and pediments (Hall de' Ducento in Palace Vecchio at Florence), or in the most costly manner in the Anticamera of Palace Doge in Venice with reclining figures above the pediment. The enclosures are then not always of the same material as the leaves of the door, but are frequently made of the most costly and richly colored kinds of marble (Palace Pitti in Florence, Anticamera of Palace Doge), and by the omission of all mouldings on the architrave, these have a magnificent effect (Palace Pitti in Florence).

According to the dimensions of the clear width, the openings are closed by doors in one or two leaves, made of light and heavy woods, executed in paneling after the antique manner, di-
222 vided into frame and panels. The preceding period does not show true joiner's work on doors and cabinets, but rather matched wainscot, whose surfaces are mostly ornamented by paintings carelessly intersected by iron fastenings. In the 14 th century true paneled joiner's work first takes the place of

matched wainscot. The panels between the thicker framing then have at first the width of a board.(7.1 to 9.8 ins.).

Serlio mentions in Book IV (Chap. 10) of his "Architecture" single doors with 4, 5, and 6 panels, such as still continue in use, and double doors with 3 to 5 panels in each leaf. In both cases the leaves swing on hinge-straps.

Walnut and chestnut are preferred as materials for richer doors, pear-wood and cypress-wood being used more as inlays; net the needle-leaved woods (larch) are not excluded from ordinary uses.

The fastenings are let into the woodwork, only the hinges of the straps remaining visible; the fastening is concealed or only appears by a small escutcheon.(doors of the Loggias of the Vatican, Door of the Hall in the Palace del Commune in S. Savino

Double-thickness doors occur for large and small doors in the Early Renaissance, when intersecting frames are fixed on a smooth matched wainscot, forming externally rectangular, square, or lozenge panels. The latter then usually show the mode of fastening them together, iron pins set in regular rows, with plain or decorated panels, as Fig. 246 presents after the model of a small cell door in the court of S. Croce in Florence, the larger doors of Chapel Colleoni in Bergamo and of the former Bank of the Medici in Milan. The lighter wood of the larch was preferably used for the larger leaves of doors; the large door leaves then swing on quite simple and rudely wrought rollers or turn on pivots like antique ornamental stone or metal doors (Fig. 246). The doors of middle size in the state apartments of Palace Doge in Venice in part swing on hinge-straps with nails; they are also partly furnished with semi-Gothic long iron straps, which are then entirely gilded. For vertical and horizontal fastening bolts on the doors mentioned, these were limited to the simplest forms.for the purpose, all ornament being omitted; only the knobs for sliding them and the handles of the keys exhibit an artistic treatment.(Fig. 246).

In the simplest forms of doors, both the framework and the panels remained entirely plain, whereby the transition was made from one structural wood to another by ogees and bevels, or in richer forms the framework remained plain and the panels were

covered by carved work (Loggias of the Vatican), or both p
panels and framework, as were carved, the intersections be
by rosettes, as shown in a magnificent manner by the alrea
mentioned door of the Palace in Monte Savino [170], more sta
and nobler became the treatment, when framework and panels
mained plain, only the mouldings of both being ornamented
the addition of rosettes. As examples may serve the simpl
noble door of Library Laurenziana in Florence, each leaf w
three equal panels of walnut wood, and various doors in Ra
Stanzas with 5 and 6 panels with fretwork and carved branc
on the framework, beaded astragals and heart-leaves on the
mas, half-rounds and quarter-rounds.(Fig. 266). [171]

Note 170. Published in Geymuller.

Note 171. Compare Redtenbacher, R. Vorbilder für Tischl arbeiten. Collection of selected joinery works of the Ren sance in Italy. Abth. 1. Carlsruhe. 1875.-- Unfortunately this otherwise accurate publication, everything is not giv that might structurally be desired; nowhere is there given thickness of the wood, the manner of its connection, and n ing about wheer and how the leaves shut!).

281 Double doors are beautifully divided by inserted round p
els ornamented by heads of lions with a knocker ring in th
mouth (Fig. 267), as shown by the entrance door at one end
Raphael's Loggia, a masterpiece of work, as required by th
282 composition and section of the ornament. The longitudinal
el adjoining the round panel is represented in Fig. 268, a
the entire door with its enclosure in Fig. 266.

The woods are generally left in the natural color, oiled
varnished, or also stained reddish-brown, yellow, or dark-
and then waxed.

Instead of reliefs, intarsias occur on framework and pan
in the earliest period, i.e., inlays in woods of different
ors, to which are frequently added inlays of metal, mother
pearl, ivory and ebony. Of metals, there are employed gol
silver, bronze, copper, tin, together with precious stones

(Stained woods in combination with metal inlays to a sma
extent, for example, on the backs of the choir stalls of S
menico in Bologna, which are wonderfully graduated in colo
intarsias).

This art extends back into high antiquity; it reappears in the middle ages; we find pieces of furniture executed in this way in the inventory of Charles V (1380) and of the Duke de Berri (1416), we see it in Italy in the earliest period of the Renaissance already in the highest degree of perfection.

Yet we must here distinguish between incrustation and marquetry. In the former, after the ornament is drawn, the wood is cut out to a certain depth and then filled with a more or less precious material, in the second, veneers of wood, mother-of-pearl, copper, etc., are laid on each other and sawn through at the same time, afterwards being inserted in each other according to the drawing. Thus intarsias and counter-intarsias are produced, so that the same design may have light on a dark ground or the reverse. The veneers are applied to the structural parts.[172]

Note 172. Drawings of intarsias of natural size are found in Gruner, L. Specimens of Ornamental Art. London. 1850. -- Also in Teirich, V. Ornamente aus der Blüthezeit der Italienischen Renaissance. Vienna. 1873. The accompanying text affords interesting conclusions concerning the occurence and history of intarsia work in Italy before the 17 th century. The execution of the intarsias is plain. The veneers are said to be a little over 1-16 inch thick and the ground to be 1 3-8 ins.

Until the end of the 14 th century, marquetry consisted of geometrical patterns, mostly executed in black and white; after the beginning of the 15 th century and by the aid of stained woods, landscapes, architectural interiors, and historical pictures were produced, to which was added all the wealth of woodcarving and of metal inlays. (Tortoise-shell and gilded bronze, the so-called Boule furniture. Andre Charles Boule in the 17 th century).

A last degree of ornamentation was attained by painting the leaves of doors in different colors with the gilding of certain parts, gladly employed by the Barocco and the Rococo. (Wood color and gold or white and gold, also with green, red, and black coats of color with the ornaments touched up with gold). The High Renaissance busied itself with painting grotesque ornaments, flower bouquets, figure compositions, still-life pieces,

and landscapes, which covered most large panels.

The structural parts are sensibly joined together, treated, and ornamented. Eccentricities, such as occur in the German Renaissance, are not found, as for example, where mullions are formed like pilasters or half-columns, which instead of being fixed and supporting something, swing in a circle! If a moulding covering the joint of the folding doors is arranged, this is treated without making prominent the top or bottom. (Compare the doors in the Loggias of the Vatican).

223 195. Paneling.

Adjoining the doors is the paneling of the walls, which may extend to the ceiling or merely cover a portion of them to a certain height, being carried around the room to the top of the window-sill or only considerably lower. Breast-high and base wainscoting is ouh usual name for the two kinds of paneling, called wall-paneling or woodwork in France or paneling in North Germany. Where this paneling does not extend to the ceiling or merely to mid-height, it commonly forms the base for the ascending mural decoration. The division of the walls of living apartments into base, with or without subdivision into panels, and a frieze with a crowning cornice, is as ancient as architecture itself. All peoples of antiquity proceeded according to the same law, as well as the middle ages and the Renaissance afterwards, just as the most recent period likewise holds fast to it. Yet the execution of panel-work was not always carried out on similar basal principles. The ancients, as well as the Byzantines, the Arabs, and the masters of Romanesque architecture, considered it as a surface decoration like a rug, or in dividing it into framework and panles, i.e., in the acceptation of joiner's work, they proceeded according to the law clothed by Semper in these words:-- "The framework and latticework should never dominate the panelAwork, i.e., the panels; these should remain the chief thing, the motive proper, and they should accordingly be treated like a fabric and be richly developed; the enclosing structural elements should serve, and not subjugate them."

The Gothic likewise adhered to this principle during the firs period, while it did not overpass the true bounds of the struct

structural; then it fell into the desolate form of blind tracery for covering walls.

The Renaissance broke with this monotonous idea and returned to the ancient artistic idea, when it again conceded to sculptors and painters participation in this interior decoration. It adhered to this, as already stated, even in the doors constructed on the same principles.

As in them, the framework and panels were of costly woods covered by marquetry, painting, and gilding, left in the natural tone of the wood, or covered by plain coats of decided color. The Italian masters (Serlio, Primaticcio and others) employed in France proceeded similarly, and the native ones likewise. (Chateaus of Fontainebleau, S. Germain, Anet, and Gaillon).

The entire 17 th century in France embraced the fashion of ornamenting the paneling with gilding and painting. Marshal Richelieu had the panels painted with obscenities ("very immodest figures in relief in the centre of each panel"), -- an unworthy ending of so good a mode of decoration.

In the year 1751 was introduced glass painted on the back instead of wooden wainscoting, with all kinds of genuine and imitation marble. With the adoption of the Gobelins tapestry for mural decoration, the wainscoting had to disappear or sink to make breast-high wainscot or to become lower base woodwork.

The ground principle of arranging the wainscot with large panels is expressed in the assembly rooms of Palace Doge in Venice. (Hall del Collegio, Hall del Senato, Hall del Magior Consiglio, and in the Anticamera). Pilasters there generally divide the smooth red surface of the woodwork, whose decorative members are enriched by gilding. The greatest simplicity prev-
284 ails in the joinery, in the wainscoting of these rooms, which is furnished with simple seats, above which is developed the highest ornamental magnificence ever created. Just this contrast between the simple substructure and the splendid upper part perhaps allows the latter to appear so much more effective and
285 grand. The like is found in Hall de' Ducento of Palace Vecchio in Florence. What other period than that of the Renaissance could have created such? What other art ever employed this wealth of means of expression and by such masters?

As a production of the higher style may be designated the decoration of the cabinet of a prince, the Duke of Urbino, in which the wainscoting exhibits the most perfect and the richest intarsias. This is equaled by the choir stalls, the desk, the doors, and the tribune of the Cambio (Mint) in Perugia,. (Fig. 269). executed by Domenico del Tasso (1490-3). A Bencivieni da Mercatello and A. Masi (1562), the harmonious, moderately large, vaulted apartment being filled by the paintings of Perugino (1499) on the ceiling. "No officials in the world are so splendidly seated as is the court of exchange of the chief city of Umbria", says Burckhardt with justice.

To the 16 th century belongs a more architectural than ornamental great series of stalls, 8 spaces of which still exist in the great hall of Palace Pretorio in Pistoja, a splendid work, but which was not originally intended for that place, but rather belonged to the choir of the Sapienza, according to an inscription carved on a stall. The over ornamented columns resting on consoles, the overloaded cornice, the richly sculptured frieze and framework are contrasted strikingly with the plain panels, which must have been treated otherwise before the work changed its location.(Fig. 270).

196. Decoration of the Walls.

The wall surfaces were smoothly plastered in living rooms, painted and stuccoed, then hung with tapestries or covered by leather hangings, and for elegant apartments and especially in the Late period, they were covered by woven fabrics of all kinds, and finally with painted or printed papers. Some rooms of the Castello in Milan still show the mediaeval mode of treatment of surfaces, for example, patterns that appear like red wafers arranged beside each other and adorned by heraldic insignia, extending uniformly over the walls and vaulted ceilings, and the like. The Borgia apartments in the Vatican are again made accessible, and they afford to us a trustworthy representation of mural decoration on smooth plaster. In the Hall dei Misteri, the walls are divided into panels, that extended to the floor (the walls being without a base), and which are separated by pilasters with panels of colored grotesques on a

gold ground. The panles were indeed themselves painted with golden linear ornament on blue and greenish grounds, and they were also restored in that manner. In the Hall dei Sante, a high wainscoting with a bench before it forms the base of the wall; this is subdivided into two rows of square panels above each other, whose grounds are alternately decorated by ornamements and architectural details; above this and to the ceiling cornice is painted a tapestry pattern. In the Hall delle Arte Liberali is a peculiar division into panles with colored geometrical figures, executed with round disks in the frieze with interwoven bands, just as are found in the Early Christian mosaic floors in churches, and in the great Hall dei Pontefici, beside panels with tapestry patterns, there are arranged mural paintings with arabesque borders. In the Hall del Credo these again occur, subdivided into panels with tapestries of geometrical patterns, at the centre of which is placed a circle containing the papal arms.

Mural paintings in fresco (1481) were separated by pilasters or enclosed by arabesque borders, which were mostly painted gray on gray or brown on brown with gold ornamentation, to w
226 which the borders with grotesques gave place some 10 years later (Borgia apartments, 1493), followed these fabrics decorated by lines or flowers. Such mural decoration is executed in a perfected way in the central hall of the Royal Villa Poggio
227 a Cajano, in the Hall de' Ducento (Senate of 200 in Florence) of Palace Vecchio, and ther likewise in the Hall dell' Udienza above a painted high paneled base of imitation marble, charming grotesque ornaments on a light ground covering the entire surface of the walls, in the Apartments of Leo X. Instead of figure compositions, there sometimes likewise occur pictures of cities and landscapes (Palace Vecchio). In Venice and Verona (Vigna Bocca-Tuzza) in place of large figure pictures, is arranged a frieze 6.56 ft. high and beginning directly under the ceiling beams, with colored figures on a dark ground, extending around the entire room, when the surfaces of the walls are covered by a plain coat of a single color. In a room of Casa Vasari in Arezzo, the wall surfaces are divided into two parts in their height, the lower being covered by wainscoting

and the upper decorated by landscapes within painted borders surrounded by festoons; the allegorical figures appear rather to be an addition.

With the discovery of the Baths of Titus arises the combination of stucco and painting, the most beautiful example of which is presented by the wall surfaces of the Loggias of the Vatican. As mural decorations, where the pictures are enclosed by architectural strongly profiled stucco borders, the
288 caps of the window niches being likewise strongly profiled, ornamented by pediments, arms, cartouches, reclining figures, garlands of fruits, medallions and busts, may be mentioned the Hall of Leo X in the Apartments of Leo X in Palace Vecchio in Florence.

Painted walls become uncommon as tapestry becomes the usual fashion, and which soon supplanted all other modes of decoration, where means permitted and where men could, or wished to be in fashion; it is not to be denied, that halls and living apartments by its use became rather warm and homelike, which from the first assured to it great success.(Fig. 271). It was a fabric woven from twisted yarn, woolen, mixed with gold and silk; the oldest was produced in Arras, from which it received the name of Arrazzi in Italy.(Arras in England). Even in 1380 was mentioned a battle picture in the inventory of Charles V, --"a great cloth of work of Arras",--; in the accounts of the Prioress of the Hospital Hotel Dieu in Paris (1395) was included fabrics of Arras, and what was called in the 14 th century "cloth of Arras" was nothing more than "tapisserie de haute lice". In the inventory of the Bastile in 1420 was mentioned a coverlet with black ground, woolen tapestries from Arras, and others of silk and gold.

The manufacture was stopped by the siege and cruel treatment of the city by Louis XI, and tapestry had ceased in Arras by the end of the 16 th century.

Two Flemings, de Coumans and de la Planche, introduced it into France in 1625, and the manufacture was taken into the possession of the State by an edict in 1667.

The tapestries of Raphael (1515-6), intended for the lower portion of the walls without paintings in the Sistine Chapel,

were executed in Brussels in wool, silk, and gold. Copies of these arrases until 1859 adorned the walls of the Stanze dell' Imperatrice in Corte Reale at Mantua.(Now in Vienna).

The hangings mentioned at the beginning, made of stamped and gilded leather, that indestructible material, disappeared toward the end of the 16 th century, from courtly circles, but remained in those of the citizens or of the lower nobility until in the 17 th, and even in the 18 th century, for they were mentioned in 1659 and 1765.

In the inventory of Catherine de Medici (1859) were specified red, green, blue, orange, and variously colored leather hangings, also black and silver, to which belonged dividing bands adorned by mottos, monograms, and arms.

In the second half of the 17 th century, the walls were also covered by brocades, damasks of different colors, velvet, taffeta satin, etc., and for this were mentioned brocades with grounds of gold, silver, and silk, Florentine brocade, brocatello from China, Flanders, Lyons, and Venice.

Green damask was preferred by the magistrates, yellow by artists and actors, and it was retained till in the second half of the 18 th century. About the middle of this century, painted linen was introduced from the East, which continued until nearly the period of the French revolution. Besides this, painted papers were common, which were made in France as beautiful as the imported oriental, and they extended back to 1675.

In the 19 th century, the fine luxury of tapestry hangings on
269 the walls disappeared and gave place generally to printed papers. "The new conditions of our social life, the uncertainty of our furnishings and of our tastes, the continual changes suffered by our dwellings and our fortunes, sufficiently explain the high favor enjoyed by it", says Havard,[174] and we likewise lament the uncertainty today in matters of taste.

Note 174. Havard, J. Dictionnaire de l' Ameublement et de la Decoration depuis le XII Siecle jusqu'a nos jours. Paris. 1890.

197. Beam Ceilings.

For the ceilings of living rooms and of state apartments, there prevail two basal forms, prescribed by the diversity of

the materials; horizontal ceilings of wooden beams and vaulted ceilings of stone. The plain mediaeval type was retained for the former during the early period, where beams are laid beside each other with narrow intervals, extending from wall to wall or from girder to girder, etc., according to the size or depth of the room. Therefore the beams as frequently lie parallel to the wall containing the windows as at right angles to it. In many of the Veronese and Venetian palaces, the space between the small beams is no greater than their width. The beams are themselves covered by boards, whose joints are concealed by battens; such strips also extend parallel to the beams to form small shallow panels. The transition from the ceiling to the wall is made by richly carved wooden cornices consisting of cyma, quarter-round, dentil band and cymatium, beneath which, as stated in the preceding Article, extends a figure frieze or the plain wall panels. These wooden ceilings were still mostly painted in full colors in the mediaeval manner, the smooth surfaces of the wood being entirely a reddish-brown, frequently also decorated by brightly colored surface ornaments in blue, yellow, red, white, black, and green colors. In a room with two windowsin a Florentine house 19 feet deep, the ceiling is divided into two parts by a beam 7.1 inches wide; the small beams measure 3.55 inches square and rest on the beam and the division wall with a clear span of 8.70 feet, are covered by boards and the joints are concealed by plain rectangular battens, on them being laid a coating of mortar and tiles as a floor for the room above. A kind of paneling of the ceiling spaces is then effected with the joint battens, which are 1.78 ins. wide.

This simplest treatment is then followed by the great paneled ceilings of through beams, made with beams inserted at right angles between them and richly covered with carved work, a method of treating ceilings "in whose magnificence the Renaissance knows no limits." Beautiful examples of such rich wooden ceilings with rectangular panels and rosettes on their panels, with the richest carved ornamental members and rosettes set on their intersections, are found in the repeatedly mentioned Hall de' Ducento and in other apartments of Palace Vecchio, also in Pal-

Palace Gondi, as well as in simpler and lighter form in Palace Guadagni in Florence.

With the two-fold accenting of the series of beams and of the joists crossing them, these ceilings attain a higher degree of richness, for large and small panels alternate with each other, though always structurally correct. A classic example of this kind is the brightly painted ceiling in the great hall of Palace Massimi[175] at Rome, made of pine wood, with white rosettes on a deep blue ground and accompanying ornaments of different colors.

Note 175. See Letarouilly, Vol. 3.

But the divisions of the ceiling produced by the construction were in time abandoned and freer ones were used in their
292 place; hexagonal and octagonal were placed beside each other and extend freely over the room. Rectangular and acute-angled small panels were inserted between the polygons, which themselves again had to yield to circular forms. Geometrical figures were combined with favorite general designs.

In Book IV of his "Architecture" (Chap. 12; "De i Cieli piaini etc"), Serlio gives on 12 printed pages a great number of motives for such ceilings, from the simplest to the richest style, and he proceeds thus:-- The ancients called such panels "Lacunarii"; modern Romans term them "Palcoi"; in Florence, Bologna, and the entire Romagna, people speak of them as "Tasselli", and they are called in Venice "Travamenti" and "Soffitadi." Peruzzi likewise executed in these free forms some ceilings in Palace Massimi at Rome in the most charming manner, that attained a climax of magnificence by colored gilding, (white and gold, the ground of the octagonal coffers being blue, of the square ones red, and of the long panels green). These heavy coffer ceilings were always designed for walls decorated by strong colors, the richest of which from the 12 th century is preserved in the Hall de' Gigli of Palace Vecchio at Florence. Left in the natural tone of the wood, without any addition of bright color, is the wooden ceiling in the Library Laurentiana at Florence, with its partly capricious and unquiet details. The splendid ceiling in the Badia at Florence is likewise without color, which as a church ceiling is only

mentioned here on account of this fact. On the ceilings of the Early Renaissance in the apartments of princes, the decoration is richer and more fanciful, so that ornamentation predominates. Charming examples of this kind are the ceilings in the Hall de' Busti and Camera a letto in Palace Doge at Venice; gold and blue, executed in the greatest magnificence, the rosette taking the place of the coffer. A painted coffer ceiling of the good period is to be found in the upper story of School del Santo in Padua.

First in the apartments of Palace Doge at Venice occurs in place of this still architecturally effective ceiling another new conception, for great carved and gilded frames, frequently extremely Barocco in style, are found on the ceiling, striving to produce "a natural illusion", for the observer is expected to regard the pictures painted within the gilded frames as actual existences. But only the large main panels are executed thus, while the paintings in the small panels are treated as gray on gray, brown on brown, in bronze or copper colors.

The providing of such paintings of rest with ornamentation otherwise extending in splendid colors within the heavy and rich gold frames is well considered and likewise enhances the general effect of these stately ceilings, which belong to the most perfected works of their period.

Gilded sculptures in a peculiar arrangement form the massive frames, which enclose masterpieces in painting of the highest rank, creations of Paul Veronese, whose spell no man can reject, whether he be artistically gifted or not, and yet I may subscribe to Burckhardt's decision:-- "The stately paneling of the lower walls, the doorways with statues on their pediments, the pompous mantels with allegorical figures above and marble atlantes below, complete the impression of abundant power, which reigns in these halls. But as for pleasing and pure harmony, this will rather be found in the apartments of Raphael's time."

198. Vaulted Ceilings.

The vaulted ceilings are mostly restricted within the forms of "cloister vaults" and those with central panels with and without lunettes, which are most common to the Renaissance.

But tunnel vaults are also justified for porticos and high apartments (Poggio a Cajano), and where cross vaults are arranged, as for loggias, for example (Palace Doria in Genoa), this only occurred with the removal of the groins in order to have a free field in the decoration of the surface. Only the transition style and the earliest period permit cross vaults to exist in the mediaeval form and also to decorate them in the mediaeval style by treating the dividing ribs and compartments separately, when the latter were ornamented by medallions and grotesques. The compartments in cloister and panel vaults were terminated below by cornices; these separate the vertical wall from the ascending vault, which forms the transition to the large panel on the ceiling. The latter was enclosed by either a geometrical, or in the Barocco period, by a capricious frame.

On the ceiling is repeated in a more thorough and spirited manner what already makes itself felt in the decoration of the walls; the combination of stucco and painting, and the ornamental art of the Renaissance here soars to the greatest undertakings. According to time and means, sometimes merely light or painted in two colors, then rising to the richest spell of color with the help of gilding.

Here was first the most severe architectural subdivision, then the freest field for painting, as for those of Pocetti in the corridors of the Uffizi at Florence, in the hall of Villa Carregi, and the like.

Genoa possesses examples of the most magnificent type in the apartments of Palace Doria and in many other palaces. The Borgia Apartments in the Vatican exhibit classical examples in the rooms. The Farnesina, the Loggias, and Villa Madama in Rome, etc., present the noblest things ever created in this domain by human genius.

The Late period was generally satisfied with a light coloring in the rooms of palaces, or with the natural color of the stucco, placing in the centre a great and brightly colored painting in oil or fresco, as Tiepolo did in a splendid way in the great hall of Palace Canossa in Verona. From the Barocco period, the ceilings in the upper story of Palace Pitti at Florence by Pietro da Cortona and Giulio Parigi (1596-1669) deserve all

praise for their stucco ornaments and pictures within the richest gold frames; these transform the apartments covered by them into stately rooms in the great style.

199. Floors.

Above the ceilings lie the floors, which may be constructed on massive vaults by filling the spandrels with masonry and pointing with mortar, a separate and independent support is arranged to receive the floor, or the ceiling and the floor coincide, as generally the case when constructed of wooden beams.

The covering may be most simply and cheaply of plaster or cement, or in richer buildings be executed with marble slabs, mosaics, burned bricks of ordinary or special shapes, glazed tiles, of planks in the earlier time, and again of wood in the later, though in the form of parquetry.

Floors of Venetian "Terrazzo" (cement) in flat colored patterns are to be found in Palace del Te in Mantua, for example.
292 Where mosaic floors are employed, the well known ornaments of the Early Christian style and of the period of the Cosmati are repeated. Where marble slabs are used, those of two or three different colors are used in a simple alternation of colors. During the Early Renaissance period, the ordinary burned red bricks were most commonly employed in private buildings and even in palaces, and these were well laid on a bed of mortar on edge or flat and in different patterns.

The most favorite way was to set the bricks in corn or herring-bone patterns, that appear everywhere, even in churches, chapels, and in monasteries (Opus spicatum). We find then in
293 the Borgia Apartments of the Vatican, in Palace Ducal of Urbino, in Villa Papa Giulio at Rome, etc., where also occur division by bands into triangular and rectangular panels, in which the bricks are set parallel to the walls. But in addition to these normal forms there also occur tiles of special shapes, larger and smaller squares, together with elongated hexagonal tiles, which are laid together in the most varied patterns. (Fig. 272).

A tile floor in two colors, burned in light yellow and strong red tints, repeating the design of the ceiling, though evidently transformed into a flat one, was executed in Library Laurentiana

at Florence. It was here desired to avoid all elaboration, which might divert the attention from the architectural forms.

Greater charm of color and richness was supplied by the glazed tiles, which are now found in scarce remains on account of their small durability. Vestiges of glazing may still be recognized in the loggias of the Vatican only on the tiles close to the outer walls. In the Borgia Apartments of the time of Alexander VI, there are yet in these halls the old tiles, ex-
294 tended[176] during the restorations, which we reproduce in Fig. 273. These are also simple in design. In a small room in the Quartiere di Leone X at Florence, laid in hexagonal and octagonal tiles, then in Villa Imperiale near Pesaro and in the Library at Siena, there are still preserved many old pieces. They are found in greater numbers in many chapels in Venice, Siena, Rome, Parma,[177] Florence, and other places, dated from the years 1458, 1471, 1482, 1504, 1510.

Note 176. From the (unnumbered) plate in the already mentioned work on the Borgia Apartments.

Note 177. "Mattoni di Majolica da un pavimento costrutto nel monastere di San Paolo dei Benedetti Badessa dal 1471-82" are to be found in numbers in the Museum at Parma. These pieces from the Early Renaissance are mostly colored blue and white and bear as a design sometimes a female, sometimes a male portrait, as well as colored flowers on a white ground, and even small figures. Majolica tiles ornamented by little cupids were employed for covering a wall-arch in the former Monastery of S. Paolo.(16 th century). These are also now preserved in the same museum.

Colored tiles were also made by the Robbias in Florence for the Vatican Loggias in Rome. In Naples, and especially in all Sicily, glazed colored clay tiles form in the better dwellings to this day a favorite, beautiful, and durable covering of the floor, secure against receiving dust and vermin.

We find glazed tiles frequently employed for covering the walls in the narrow stairways of the citizens' houses, beautifully and correctly designed with oriental sketches, with splendid coloring imitating tapestry patterns, executed in imitation of the Spanish azulejos.

Already in the 14 th century, floors of wooden planks were executed in France and also in Italy in addition to those of clay tiles; but they first became common in the 17 th century in the form of modern parquetry and replaced floors of tiles in all elegant dwellings.[178] "His sisters were in the chambers with parquetry floors, where they had beds more in the fashion, and mirrors in which they could see themselves from head to foot," said Perrault in his tale of Cinderella. When one cannot have everything, one must be satisfied with parquetry and a modern name, wrote Madame de Sevigne. The "Livre Communale" (Handy Book) gave in 1692 a plate of patterns of parquetry, and in the 18 th century (1782) dwellings with parquetry floors were rented. In the Accounts of the Royal Buildings is mentioned wooden parquetry by a cabinet-maker for the great pavilion of the Tuileries.(1679).

Note 178. At the time of the sway of the Renaissance in France, Italian artists and artisans were in great numbers busy in France and were employed in the highest work.(Primaticcio). The original statements concerning certain arrangements and technical methods are less extended in Italy, than is the case in France. Therefore we frequently make use of French sources, assuming that their meaning must likewise apply to allied cases in Italy. Aside from the fact that sufficient examples of clay tiles are preserved in the museums of the Louvre, of Cluny, in Troyes, Grenoble, Auxerre, etc., we know that such were in use from the 18 th century in France, and that "inlaid" clay tiles replaced the plain tiles in the 14 th century, which still remained in use in the 15 th century. The process was as follows: "Tiles are used, whose upper surface was first stamped, then filled in the recesses produced by stamping with earth of a different color, the whole then being covered by a lead glaze." These inlaid tiles disappeared and gave place to painted tiles in France toward the end of the 14 th century. Dutchmen brought the process into the country.

Philip the Bold, Duke of Burgundy, made in the year 1391 an agree ment with two "makers of plain and ornamental tiles" for the delivery of such tiles. The two "makers" were a certain Jehan de Moustier of Ypres and a Jehan the Thief.

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In Rouen were mentioned in 1542 faience tile floors and these tiles were laid in Hotel Soissons (1581) in Paris; Catherine de Medici also possessed them. The change occurred in Italy as in France and thus about the same time!

200. Fireplaces.

Serlio says in Chapter 26 of his Architecture:-- "Fireplaces are truly grand ornaments of all dwellings", and he gives 4 examples of them, the first one in the Corinthian style, a second in mixed Doric form, a third in pure Doric, and a fourth in mix-
295 ed Tuscan with rustications. He shows in Book IV some fanciful compositions for fireplaces. He also states that in France the smoke flue was always carried up vertically and served for several fireplaces at the same time, wherefore it was advisable to ornament it up to the ceiling. It should also be effective in large rooms by the splendor of its appearance. It is also always considered in the same sense as being a fixed piece of magnificence in the room, from the earliest era of the Renaissance until its decadence.

In Palace Gondi in Florence, the state fireplace in an austere style stands between two simple doorways against the side wall of a hall with paneled wooden ceiling. Two richly ornamented balusters flank the opening and support a high frieze
296 with naiads and tritons in moderately strong relief, terminated by a crowning cornice, at whose angles stand small antique detached figures, between which is suspended the great shield of arms of the Gondi with the bent arm and the mace in its h hand. As a charming example may likewise be mentioned the little fireplace in Casa Vasari in Arezzo, with scholl borders and triglyph frieze, and the fireplace of Palace Borgherini as a great piece of Florentine magnificence, to be found in Mus-
297 eum Nationale (Bargello) at Florence, constructed in accordance with the basal idea of the Gondi fireplace, except that small Corinthian columns with richly ornamented shafts are here set instead of balusters, supporting an entire entablature, beneath which the beautiful figure frieze extends in high relief. Sphynxes crown the angles; seated cupids support the arms of the family.(Fig. 274).

Severe and beautiful fireplaces are found in the Palace at

Urbino[179] with remaining polychromatic decoration, and where the frieze is especially notable, on which cupids with gilded hair and wings rise from an azure ground, while the ornaments are blue and gold, and the other architectural portions are left white.

Note 179. Published in Arnold, F. Der Herzogliche Palast in Urbino. Leipzig. 1857. Pls. 42-47.

Simpler fireplaces are to be found in Palace del Te in Mantua. A massive, large, and darker fireplace is preserved in the great hall of Palace Doria at Genoa, its cornice being supported by white marble consoles with little figures before them, above it being a high structure with volutes and a white marble medallion in relief at its centre, flanked by two small marble figures, over the medallion being a great eagle between cornucopias, garlands of fruit and scrolled bands, a crowned angelic figure growing out of the apex, which holds a coronet, that extends to the springing of the paneled vault 16.40 ft. from the floor, but this is far excelled in magnificence by the marble fireplaces in Palace Doge at Venice. On the largest of these in the Anticollegio, a work of Tiziano Aspetti after the designs of Scamozzi, only the lower portion to the cornice is of marble, the portion above being executed in white stucco and gilding. Consoles on candelabra or bent atlantes on others support the high cornice of the mantelpiece.(Fig. 275).

201. Privies, Baths, and other subordinate Rooms.

Privies were placed in houses in antiquity. They disappeared, then came in again and became necessary, where cleanliness in the cities was subjected to legal regulations.

According to the small miniature of the Decameron from the 15 th century (Fig. 276), privies in the period of the Early Renaissance were placed in country houses, at least in the form of a covered and boarded shed with an open space beneath. At the time of the plague (1533), police orders were given, according to which householders having no privy in their abodes had to forthwith construct them, -- evidence that in the 16 th century the house privy was not everywhere locally common.

The palaces of the Early Renaissance exhibit them of mean appearance (Palaces Strozzi and Giugni at Florence, Palace Picco-

Piccolomini in Pienza), but always properly placed against external walls with windows. They must indeed have scarcely been used by the nobles; for in Italy as in France movable commodes were used, as frequently today in southern Italy and Sicily. In the inventory of Hotel de Quatremares (1384) is mentioned one of these, and such commodes occurred in 1540 under the name of "wardrobe." They remained in use under the same name in the 17 th century, and in the first third of the 18 th century in France and later in Italy also, **there** were constructed "English closets", fixed closets with water flush and seat, which were then made large[180] and spacious and placed in the vicinity of the bathroom.

Note 180. See Blondel, J. F. & M. Patte. Cours d' Architecture. Paris. 1777. Vol. V. Plate 60.

The dancer Mademoiselle Deschamps had such a closet arranged for herself, entirely decorated by mirrors, and in renting dwellings in Paris it was always particularly emphasized (1760), that some place, -- a commode or water closet, -- existed. This "modern" arrangement, though **soon** 200 years old, made its way from far North to the South, according to its name.

In the great work[181] in 4 volumes mentioned below is drawn an arrangement "for a water-closet or place of convenience, whose seat is in a niche", and which clearly represents the construction of the English water-closet and essentially covers the one usually considered as an invention of our own time.(Fig. 277).

Note 181. L'Architecture Francaise etc. Vol. 3. Paris. 1727.

Gruner gives us an illustration of the artistic treatment of a bath in a house by a colored representation under the title of "Bath of Cardinal Bibiena in the Vatican", by which we learn that the art of the Renaissance fully appears here also. Over a square room of moderate size and furnished with niches rises a cross vault, which like the walls, is adorned by brightly painted grotesques of extraordinary beauty. The semicircular niches are painted in tapestry patterns, and another covers the ornamented marble bath-tub. A room with magnificent coloring and yet how comfortable! The sketch designs for the decoration were furnished by none other than Raphael himself.

Vasari (X and XIII) further mentions the Stufa in Villa Lante

at Rome, that Giulio Romano adorned by paintings, -- the loves of the gods, -- and then the bathroom covered by a dome constructed by G. Alessi in Via Grimaldi at Bisagno near Genoa. In the work of P. P. Rubens on Genoese palaces is given a design
209 for a house bath, which consists of a larger room, an ante-room, a vaulted octagonal warm bath and a similar vaulted cold bath. The walls of both are ornamented by niches and must indeed be assumed to be richly decorated and wainscoted with marble. (See Figs. 278, 279, where are also represented the arrangement of the kitchen of a palace with bake-oven, store-room, and dining room for servants, all placed in the basement story). The beautiful bath room with the small dome resting on columns in Palace Pitti at Florence is of more recent date.

202. Courts and Halls.

The rooms of dwellings are grouped around an open court after the antique model, as mentioned and shown in special cases. According as the site and the means of the builder permitted, we find the court enclosed by simple walls containing windows, or for more convenient passage in the house and in order to obtain a separate entrance for each of the connected rooms, open halls with piers or columns are extended either on only one side of the court, on two, three, or on all four of them. As examples of these may be mentioned:-- as a building without open halls, the little house occupied by Michael Angelo in Rome; with a hall on one side, the Casino of Villa Cesi; with halls on two sides, Palace de Romanis and Palace Patrizi; with halls on theree sides, Palace Lante, Palace di Firenze and Palace Vicolo dell'Oro; with halls on four sides, Palace Farnese, Palace Sciarra, Palace Negroni, Palace Borghese, Palace della Cancellaria, Palace Sora, etc., all in Rome, as well as a great part of the Florentine, Genoese, and Milanese palaces. Smaller courts were made to appear larger by additions or by perspective arrangements as shown by Palace Spada in Rome (Art. 120), or one side was enclosed by niches with fountains and flowers, so that the view might extend further. Larger courts were frequently divided by intermediate porticos so as to appear more imposing.(Compare Palace Montecatini, Palace Bossi and Angelo Massimi, Palace Pamfili in Rome, and the wonderfully beautiful

and moderately large court in the Certosa near Pisa, where a draw-well is placed in the midst of the transverse portico. Also Palace dell' Collegio Helvetico at Milan should not be forgotten here.

300. The free supports of the corridors or halls are according to the antique connected by horizontal architraves and entablatures, as in the courts of S. Stefano at Venice and in that of the before mentioned Collegio Helvetico at Milan (Fig. 280), a style declared by Alberti to be the most imposing, or vaults and arches are employed, which rest on piers or columns. Then the porticos in the same court are not always of equal width; four different widths frequently alternate with each other, (Palace Giugni in Florence), where one or more porticos are intended to receive the stairs to the next story.(Compare Palace Archbishop and Palace Gondi in Florence, also Fig. 281). With narrow proportions, as for example in Palace Serristori in Florence, the staircase occupies the entire area of the court by extending around three sides of it. Horizontal architraves and arches sometimes alternate above the free supports of the portico at regular distances, as shown in Art. 167 by the so-called Palladian window, and executed in the little court of Palace Linotti in Rome and in the charming little court of the Scalzi in Florence.(Fig. 282). This alternation in larger designs is produced by domes above the free supports, for example in the court of Palace Borghese at Rome (Fig. 177), of the Brera in Milan, of the University in Genoa, and of Palace Non Finito in Florence, etc.(Fig. 283).

301 203. Free Pillars.

302 The earliest form of free pillars is the octagonal pier, as shown by Palace Venezia at Rome in one of its courts, as well as by the court of the Hospital Giovanni dei Genovesi there and by some Bolognese porticos. The solution of the treatment of the capitals is interesting, especially when it concerns the Corinthian order, the bell being sometimes being made octagonal like the shaft; at others it passes at top into the complete circular form, and the acanthus leaves are sometimes placed on the angles of the bell; they sometimes cover its flat front surface.(Compare Figs. 169 and 171 from the court of Palace Hotel

Hotel Brun in Bologna and Fig. 170 from Palace Fava there, where it is shown how the capitals are treated, when two half columns are attached to the sides of a square middle pier). Simple rectangular piers are found in the court of Palace de Romanis, piers with half columns placed before them in the court of Palace Venezia and of Palace Farnese, similar ones ornamented by pilasters in the court of S. M. della Pace (Figs. 284, 285) in Rome. These were succeeded by columns with plain and ornamented shafts, according to the material that antiquity must supply, so far as its stores sufficed, before new ones were produced.

204. Angle Pillars.

For rectangular courts with piers and columns, the form of the angle pillar has always been an object of thorough study and reflection, since every master of importance has attempted something different. Those of the Early Renaissance, which employed octagonal piers or columns, placed like the ancient pillars at the angles, also similar to those used along the sides. Since the Doric or Corinthian order was chiefly employed and both forms of capitals could be used anywhere without change, the problem solved itself, but when the Ionic order sometimes came into use, men were naive enough to place the bolster at one side only, as is the case in the Loggia of Villa Careggi and in the oblong court of the Certosa near Florence. Bramante wished the angles in his lofty court facades in the Cancellaria at Rome to at least appear to the eye stronger, and he replaced the angle columns by angle piers. The architect of the court of S. Pietro in Vinculis at Rome hit upon the odd solution of the angle, for he placed two half columns together and thus obtained a heart-shaped section of the angle pillar. In the court of Palace Borghese at Rome the master arranged a square pier at the angle with complete columns on two sides. Less simple was the use of rectangular piers with engaged half columns, as on Palace Farnese in Rome, when Sangallo employed a projecting angle pier and engaged half columns. A peculiar solution was also attempted in the court of Collegio Romano, and Cigoli likewise chose the heart form in the court of Palace Non Finito at Florence, but made it somewhat more endurable by the projection of the pilaster. It is interesting there,

how he utilized the diminution of the column by permitting the angle of the pier to project between the capitals and broke
303 the members of the capital around it. Palladio increased the
304 stepping at the angles by arranging in one case three columns
305 at the angle: at another time by the use of piers and half columns, he inserted a projecting pier at the angle, to which he assigned the same projection as to the engaged half columns.

Scamozzi likewise employed piers at the angles, but placed columns beside them only at the ends of the court and compensated for unequal intercolumniation in the court by using architraves above them. These permitted in all cases a greater freedom in movement than did the use of arches.(For examples mentioned, see Fig. 286).

205. Archivolts and Spandrels of Arches.

But the kind of angle pillar again produced peculiarities in the archivolts as a result, for only with regular corner piers, such as Bramante used, was a classical solution for the architrave possible without mutilation. All courts with Tuscan columns, where angle columns come into use, show such at the junction of the archivolt mouldings. For intersections of the profiles of arches on intermediate columns, solutions like those on Palace Diocletian in Spalato and on late Roman buildings in Syria, than to forms of the best period. On Palace Rector in Ragusa was used a half mediaeval method, letting the moulding die against an inclined plane, which does not seem like master Michelozzo, but might still be adopted for convenience. Likewise the profiles of the archivolt[184] recall in various ways t those of the late Roman style, for these ware applied as scrolls of fruits and flowers or as surface ornaments in the form of interlaced scrolls.(Arches in Maddelena de'Pazzi and in others at Florence).

Note 184. See Part II, Vol. 2, Fig. 237, of this Handbook.

The spandrels between the archivolt and cornice were then either simply enclosed (compare Palace Archbishop in Florence),
306 or they were beset by medallions bearing rosettes, as in the second court of S. Croce in Florence, while the little spaces thereby produced were filled by cupids and ornaments. Medallions with figures also occur instead of rosettes, as for ex-

example in the court of Hospital Maggiore at Milan.(Fig. 287).

206. Architraves.

Where architraves occur in place of arches, these must be especially constructed for wider spans, and like the ancients, the Renaissance here resorted to the horizontal arch. We find this mode of construction strongly developed in the court of Palace Maffei at Verona, where the antique architrave members with triglyphs are interrupted in an original manner by a horizontal rusticated arch.(Fig. 79).

207. Brick Arches.

The arches were quite otherwise shaped as soon as brick became the structural material of the arch. On the surface was then developed the entire airy world of form in flat figure and plant forms, as peculiar to the brick architecture of Upper Italy and southward to Bologna. Cupids climb upwards on vine branches, cherubs' heads with wings, and the like fill in broad bands of the fronts of arches, bordered by few decorative mouldings, that are adorned by impressed surface ornaments, or the arch of plain voussoirs may be enclosed by a decorated arch. (Certosa near Pavia, Ferrara, Faenza, Bologna).

The large spandrels of arches were also here ornamented by medallions containing figures, the small ones by painted or scluptured ornaments or again with little figures. On the wide archivolts of the great court of the Certosa near Pavia, their intersections are concealed by placing before them small figures standing on consoles (Fig. 288), and the execution is yet enriched by the use of polychromy. A peculiar decoration of each spandrel is effected, when ashlars, stucco, and glazed terra cotta alternate with each other, that the pillars, arches, and horizontal mouldings are of cut stone, the spandrels are stuccoed, and the stucco surfaces are filled with glazed terra cottas by Robbia, as done in such a splendid manner on the arched porticos of the great court of the Certosa near Florence, on the porticos of the Hospital for Foundlings there, on Hospital del Ceppo in Pistoja, and other places.

208. Court Facades.

But as architectural efforts of the highest rank are to be considered the elevation and form of the stories surrounding

307 courts, where in the fewest cases was repeated monotonously in the upper stories, what was arranged in the ground story. Above the arches with the adjacent horizontal entablature of the ground story of Palace Archbishop in Florence, there is, for example, in the upper story an arcade with a horizontal entablature. We find the same on the well known Palace Linotte in Rome, and this idea is most imposingly expressed in the court of S. M. della Pace in Rome, where above the pilaster piers of the ground story rise piers ornamented by pilasters, between which are placed little columns (Fig. 284). A more charming and also monumentally effective motive for the architecture of a court cannot easily be found, and which moreover bears such finely adjusted and harmonious details.(Fig. 285). Likewise on more modest elevations, a portico with horizontal entablature above depressed arches of wide span is beautifully conceived as well as detailed, as in the second court of S. Croce in Florence.(Fig. 56).

The resolution of the arcades in the upper story into twice as many small arches over the wide arches of the lower story, separated by a rich and wide frieze of ornament, as on Palace Bevilacqua in Bologna, is an influential architectural conception, which is there charmingly expressed (Fig. 168). The combination of frieze and balustrade between the arcades of the two stories is an interesting experiment, where the lower one is bolder and heavier, the upper one being made light and graceful.

308 Elegant and yet massive is the effect of the court of the Cancellaria at Rome surrounded by four facades with the two similar porticos above each other, yet reduced in the height of the columns, with the two half stories extended high above them and animated by small windows, and which are combined by great pilasters into one story externally. The proportion between the dimensions of the area of the court and the heights of the facades enclosing it belong to the most admirable ever created.

Just as grand and even more massive is the effect of the court of Palace Farnese at Rome with the porticos on piers in the lower and middle stories, and with the walls of an upper story only animated by windows and triply divided pilasters. Both in these designs of courts surrounded by high facades and imposing in effect, as well as in the small and graceful courts full of

poetry and grace, Renaissance architecture stands alone and unsurpassed, where it gave new form to a very ancient idea, recalled by changed conditions of life. The mediaeval court of Castle Visconti in Pavia might be brought into comparison here, concerning the uniformity and richness of the forms of details.

209. Ornamentation and Completion of the Courts.

Beds of flowers and plants appear to be excluded from within the courts of palaces, since only leveled and paved floors are there found with a slope toward the centre to carry off rain water. Ornamentation by statues, vases, plants in pots, and fountains occur instead of the beds mentioned((Fig. 289); court of S. Apostoli in Rome; compare also the court of Palace Doge with the bronze well-curbs by Alfonso Albergati (1559) and of Nicolo de Conti (1556), court of Palace Vecchio, of Palace Gondi in Florence, of Palace Borghese at Rome, etc.).

Metallic grilles for closing the arches of courts or entrances to porticos are indeed to be found; but they mostly do not belong to the good period, or they lack all artistic form. The
309 best, that are yet preserved, are found in the churches as bronze and iron grilles for enclosing chapels.(S. M. in Organo in Verona has precious small doorway grilles 3.28 ft. high, from the 17 th century, which are worthy of consideration for the b beauty of composition and gracefulness of the work. Others are found in Florence, Bologna, Rome, etc.).

The most magnificent grilles are always those on the Loggeta near the Campanile on the Piazetta in Venice, adorned by figures and trophies of weapons and the work of Antonio Gai (Fig. 290). Another simpler grille composed of bars, points, bands, and scrolls, is found at the main entrance of the Arsenal in Venice.

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C. PUBLIC BUILDINGS.

Chapter 15. Large Palaces.

210. Palaces of Princes.

Leon Battista Alberti begins his Book V (Chap. 1) on Architecture with the title:-- "De le Fortezze e de le Habitazioni che hanno a servire per i Re e peri Signore e de le loro differentie e parti", and thus will a beginning be made here likewise with the royal palaces. Alberti meant that a monarch not only has to protect his city against external enemies, but also from unquiet elements within it, and he must therefore fortify and arrange his residence accordingly. A hereditary ruler might place this in the midst of the city and make it in the form of a palace; a new man would do better by arranging it like a fortress; yet the building should not then appear as a prison.

The Duke of Milan surrounded his castle with a rampart and a moat and enclosed it by walls and towers; the Visconti in Pavia protected theirs by four massive angle towers; the Dukes of Este separated their castle in Ferrara from the streets by wide moats; others, like the Duke of Urbino, utilized the natural and scarcely accessible location of the site for this advantage, and only in the latest period of the Renaissance were means of offense and defense disregarded in the plans of the residences of princes.

211. Palace Ducal in Urbino.

It was a Count of Montefeltro, who in 1213 was invested with Urbino by the emperor Frederick II, and who built himself his residence as ruler, not without resistance from the citizens of Urbino, on a high hill dominating the little city and the country, indeed at first covering but a small area and being in the irregular style of the castle of that period. Frederick of Urbino succeeded to authority in 1437, and with him began the splendor of the house, while the highly cultured prince, mentioned as a particular friend of architecture, was no longer satisfied with the home of his fathers and sought an architect, who might embody his wishes in his way, and whom he believed he found in the person of Luciano from Laurana in Dalmatia. The work retained the old building and therefore it does not appear as a harmonious whole. In order to give a greater ext-

extent to the building, an artificial site had to be created by filling and by massive substructures, to retain these masses. The unevenness of the locality and the mode of enlargement mentioned permitted the arrangement of great cellars and storerooms, the placing of kitchens, bath-rooms, etc., without difficulty beneath the ground story, whose rooms were required to have floors of uniform height in accordance with the custom at that time. The ground story received the rooms for business
311 purposes, even the great library of the Duke, while the upper story (piano nobile) contained the proper living rooms for the ruler. All was grouped around a square court; a great straight stairway connected the two stories, and in addition several service stairways (partly winding), on account of the extended plan, facilitated passage in the house. The mediaeval winding stairway had to give place here to the straight stairway with landing, in accordance with the innovations of Renaissance architecture. (Fig. 292; plan).

The greatest magnificence of decoration was developed in the upper story, with that degree of comfort required in that period. Yet the exterior remained simple; it was in plain brickwork of reddish-brown bricks, solidly and well built, all rooms and passages being vaulted. A row of battlements formerly crowned the top of the building, as on Villa Careggi near Florence, or Palace Venezia in Rome, and on various Bolognese palaces. Pilasters, columns, bands and cornices are executed in travertine, and to all appearance, the surfaces of the facades were covered by travertine slabs.

312 Most imposing architecturally is the court with its beautiful porticos in the ground stories and the enclosed corridors in the story above, where simple rectangular windows with caps and intermediate pilasters animate the wall surfaces. (Fig. 291, sect.). Distinguished in proportions and detailed in the most beautiful manner, the court remains a pearl of the Early Renaissance in Italy, which perhaps master Luciano himself designed and executed, or perhaps his successor Baccio Pintelli. (Vasari ascribes the building to Francesco di Giorgio da Siena).

In the interior is the surprising colossal, but simply treated, hall 118 ft. long, 48 ft. wide, and 45 ft. high. The mo-

motive in the plan is beautiful with the loggias extended thro all the stories and the windows on the right and left of them, between the two circular staircase towers, and then the single larger loggia at the side (Fig. 293, view).

313 Likewise the monumental bay window given in Fig. 257 should here be mentioned, and it should be said concerning it, that it is certainly a work unique in its kind, and it shows how the masters in the Early Renaissance could work out such a motive artistically. The beauty of the variegated blue and gold marble fireplace, enclosures of windows and doors, the rich coffered ceiling with the classically perfected ornament permit us to surmise how magnificent the interior must be, and what enjoyment and comfort the owner and artist had in a rich and delicately executed ornamentation, in carefully studied and beautiful proportions, which modern mankind must generally refuse.

212. Palace in Caprarola.

A second palace on a mountain height, with the application of the new designs in fortification, is the Palace Farnese built by Jacopo Barozzi da Vignola (1547-59) on the slope of Mt. Cimino near Caprarola, located in the vicinity of Viterbo, and which Taddeo and Frederico Zuccaro so splendidly ornamented internally, that they themselves say of it:-- "Che ne in Italia,
314 ne fuora niun principe ha appartamenti piu adorni di pitture con piu grazia di questi." "They say so themselves, therefore it must be true;" but not all believe it, but find in the Vatican Loggias the purer fragrance of a modest art. The chief portions of the decoration are here the Quarters dei Prelati, richly adorned by stucco and paintings, the piano nobile, and the Scala Regia.

On a plateau of form similar to that of Tiryns rises the pentagonal palace surrounded by moats and connected with the adjacent gardens by three bridges. Flights of steps at the narrow front end of the site lead up to it. Between clumps of trees a broad road leads from the Palace and from the garden to the Casino, before and behind which are charmingly arranged ornamental gardens with fountains and cascades. The system in Roman villas of arranging the gardens and buildings about a longitudinal axis is here repeated.(Fig. 294).

Unique and beautiful remains of the circular court surrounded by columns with the six winding stairways of different sizes and the principal stairway, the Scala Regia, which served as a model for Bramante's stairway in the Belvedere of the Vatican, and which reappears in the Roman Palace Barberini and Palace Borghese. The external flights of steps do not lack a certain grandeur; but the facades have a somewhat dry effect, though with good details. The architecture of the court is treated far better than the exterior: rusticated below, with doubled piers above with engaged Ionic half columns, above these being a surrounding terrace with balustrade, the upper stories being set back. The effect[186] of the architecture of the court thereby became magnificent.

Note 186. Compare Maccari, E. Il Palazzo di Caprarola. n. D. Berlin.; also Percier and Fontaine, in which the beautifully simple Casino is likewise represented.

213. Palace in Carpi.

Another "princely residence in the Renaissance", the Palace of Prince Alberto Pio in Carpi, like that in Urbino, is no native creation. A square court surrounded by columnar porticos entirely enclosed by deeper rooms and only showing vaulted corridors in the ground story, forms the chief part of the plan. The two stories above the latter are subdivided by pilasters and animated by rectangular windows, altogether producing an effective architectural structure. The external upper story with its arrangement of small pilasters alternating with windows between the semicircular niches terminates[187] with a high entablature and crowns the street facade richly.

Note 187. An exhaustive publication of this building, especially on the historical side, is given in Semper, H., Schulze and Barth. Dresden. 1882.

Palace Reale in Milan was built in 1772 on the site of Palace di Corte, the Palace of the Visconti and Sforzas. Further details concerning this building have already been given in Art. 109. Plans and[187] historical data may be found in the works mentioned above.

214. Some other Palaces.

Palace Reale in Naples has likewise been previously mentioned

316 in Art. 115. Begun in 1600 by Domenico Fontana, it was again rebuilt in 1837-41 after the fire. The facade is 554 ft. long and is divided into three stories decorated by the three orders, Doric, Ionic, and Composite. The great state staircase was built in 1651; notable is the addition of a little later, a characteristic of the palaces of the High Barocco and Rococo periods. Palace Capo di Monte was begun in 1738 under Charles III, but was only completed in 1839, and it can therefore scarcely be considered here.

215. Palaces in Turin.

Palace Madama in Turin, built by William of Montserrat in the 13 th century, is to be mentioned, which was restored in the 15 th century under Ludovico d' Acaja; it received in 1718 the magnificent double stairway from plans of Juvara and on the western side the facade with marble columns.

Palace Reale, begun in 1646, is a simple brick structure and contains the beautiful royal armoury.(Figs. 295, 296; throne room and stairway).

Palace Carignano with its remarkable brick facade was built by Guarini in 1680, but it remained unfinished until the year 1871. The oval vestibule and the double staircase extending around it are interesting.

A French work is Palace del Valentino near Turin with its steep roofs and court of honor.[188]

Note 188. For more on the palaces of Turin, see Gurlitt, C. Geschichte des Barockstiles in Italien. Stuttgart. 1887. p. 453 et seq.

317 216. Palaces in Parma, Modena, Ferrara, and Mantua.

The Farnese commenced the extensive group of buildings of Palace del Pilota in Parma, but this remained unfinished.

This princely residence was famous for its theatre, which was built by Alcotti in 1618-28, pupil of Palladio, which will be further described under Theatres.

318 Under Francis I, Palace Ducale in Modena was built by the Roman Avanzini in 1634, and it exhibits one of the most powerful facades of this period of the style. The arcaded court is especially effective with its two stories above each other and the crowning terrace.(Fig. 297).

It may justly be said of the Palace d'Este in Ferrara; "Their castle is unequalled in picturesque and imposing effect, yet 319 cannot be considered a Palace", -- and just on that account is it indeed one of the most interesting palaces in all Italy. The Palace is built of red bricks as a so-called "Castle surrounded by water", to which partly draw-bridges and partly arched stone bridges lead through detached towers (bridge-heads). Massive square towers with galleries above high and plain arched cornices, like those in use in Florence and Siena, with belvedere-like additions, flank the palace itself.(Fig. 298).

Access to the interior from the street is by means of three entrances. The main entrance leads through a long 3-aisled corridor for the guard covered by tunnel vaults resting on columns, then from this over a small draw-bridge into a vaulted corridor and through the latter into the great plain court. The interior no longer contains what is promised by the exterior, it serves for the purposes of the government and contains little artistically remarkable. Except that the Salal del Consiglio contains frescos by Dosso Dossi, as well as the adjacent Sala di Napoli, which represent wrestling contests. Better than these are the friezes with children in the succeeding Sala dell' Aurora, and this room may be termed the most beautiful one in the building. The continuous balcony on the exterior constructed of white marble slabs is so remarkable, in that its supports are composed of three stone slabs scarcely 8 inches thick, placed on each other and cut into volute ends in front, and which support the thin floor slabs divided into two pieces in depth.

The covered balcony extending across the entire width of the bridge-head is also to be mentioned, and which rests on similar narrow supports; its superstructure consists of small wooden posts, sills and purlins, whose interspaces are closed by windows. A curved roof of metal, shaped like that on Palace Roverella, covers the entire extent of the balcony.

The ducal Palace of Gonzaga, now Palace Corte Reale in Mantua, was built for Frederick II of Gonzaga in 1302, then changed and painted by Giulio Romano, and contains an abundance of interesting and splendidly decorated rooms, of which should be 320 especially mentioned the dining hall, the Hall dello Zodiaco,
321

whose ceiling is painted with star forms on a dark blue ground with the addition of gilding, the Hall degli Specchi, some rooms with labyrinthine drawings on the ceilings in blue and gold, and the small cabinet for Isabella d'Este with its decorated blue and gold ceiling, which with their costly works in wood, stucco, and marble, have become permanent models for architects, painters and decorators.(Fig. 299; Hall dei Maschera).

Here belongs Palace Castello di Corte, now containing archives, with its precious paintings on walls and ceilings by the great Mantegna, of whose character and firm drawing a small example is given by Fig. 300, which represents the spandrel of a vault painted gray on gray with the medallion portrait of a Roman emperor, surrounded by garlands and waving bands, adjoined by spandrels with mythological scenes, while at the top of the ceiling is arranged a so-called illusion painting, a listening maiden leaning against a balustrade with cupids. A wealth of the noblest ideas is preserved here and offered for study by artists possessing refined invention and with feeling for the truly beautiful; what is found here attains to the best that the human mind has ever created in the domain of monumental decorative art.

217. Palace Doge in Venice.

Palace Doge in Venice on Rivoalto island was built by Doge Partecipazio (809) as a castle with moat, draw-bridge, and three towers connected by walls, with the residence of the Doge in the eastern wing next the narrow canal. First in 976, then again greatly injured by fire in 1105, it was enlarged and extended in 1173, 1301, 1309, and 1340, when the towers were removed and the moat was filled up. Under Doge Foscari in 1424, the Palace was again enlarged and the beautiful Porta della Carta (1439) was begun, the most charming example of the transition from Late Gothic to Renaissance.

The architects of the southern wing must have been Pietro Baseggio and Filippo Calendario; those of the western wing were Giovanni Buon and his sons Pantaleone and Bartolomeo.

The magnificent court was begun in 1485 by A. Rizzo, continued in the 16 th century by P. Lombardo and Antonio Scarpagnino, yet only partially completed by them. The small facade at the

the northwest angle adjoining the Church S. Marco is ascribed to Guglielmo Bergamasco (1520), while the completed facade of the eastern wing is by Pizzo.

In the year 1577 two wings were almost destroyed by fire, when the opinions of 15 architects were asked, who agreed on a new building, with the exception of the Palace architect Antonio da Ponte, who spoke in favor of a restoration without rebuilding the walls of the first story, and he carried this out accordingly. It experienced a final suitable restoration of the facades covered by red and white marble slabs and of some pillars in the court during the years 1873-89, with considerable renewal of the decorative ornamentation.

The Giants' staircase, which extends freely into the court and is adorned by the two colossal statues of Neptune and Mars (both by Sansovino in 1483), was constructed by Antonio Rizzo from Verona as a state approach to the second story, as well as the magnificent facade and the graceful vestibule near it.

The facade with the clock was executed by Bartolomeo Monopola (1589-1609). The stairway inside it, the Scala d'Oro, with
322 its splendid stuccoed tunnel vaults leads to the story with the great Halls for the Representatives and Councils, the Hall[189] of the Senate, the Hall of the Grand Council, etc. (Fig. 201).

Note 189. Compare the Official Guide through Palace Doge in Venice by Antonio dell Rovere with the ground plan and Fig. 201.

Thus here likewise is not a building executed at one stroke, not an entirely harmonious work, but the different parts originated gradually under special circumstances or requirements and were carried on in the changing taste of the period. Without concern whether the newly built harmonized with the old, one was added to the other as needs required, and the residence of the President and of the legislative bodies of the Republic of Venice stands there, unshaken by the storms of time during more than a thousand years, a monument of architecture, whose stones tell its history, chapter by chapter, and even if each page therein be inscribed with different letters, yet it does not bear the stamp of an erratic compilation. From small beginnings to the development of the highest power and magnificence, none of the modes of expression employed disturbs the

grand impression of the imagination or any others, since they were created by highly cultured men, though in different periods, and they may well replace the beauties of one architectural style by those of another; for only blunders in one will not interchange with the good works of another. Every period gives its best and presents it with the degree of self consciousness proper for a period of high knowledge.

This residence of the ruler of a republic with its historical recollections excels everything elsewhere created by Italy in all periods, serving for the same or similar purposes. No monarch has ever understood how to infuse into his building stones the degree of intellectual life, that the nobility of Venice knew how to give to theirs in such a high degree.

218. Palace in Caserta.

Dreary and dry appears to us on the contrary the vast Palace of the Kings of the two Sicilies, built by an architect of spirit and taste, the Palace in Caserta near Capua. Master Luigi Vanvitelli designed the plan; the corner stone was laid on January 20, 1752, and the foundations were begun on June 19 of the same year.

It is the "Potsdam or Versailles of Naples", and with its fore-court, ornamental garden, sheltered walks, alleys bordered by trees and fountains, ornamental trees, grand cascades and basins with marble statues, which extend for an hour's walk toward a hill, it is a combination of the Roman villa and of the French chateau on a widely extended level country.

In elevation, but not in plan, it recalls the mediaeval castle with the four towers at the angles of the design, while the centre is emphasized by the dome, lacking in motive and not made sufficiently imposing. The central projection is adorned by the antique pediment, that came into use again after Palladio.(Fig. 302).

The residence and state apartments of the palace lie around a great rectangular court, which is again subdivided into four smaller courts by two intersecting wings, connected together by the domed structure at the intersection and by passages through the dividing wings. The angles and the centres are accented by slight projections; the living rooms are all cir-

323 directly connected with each other, but no longer in accordance
324 with ancient custom are they made accesible from the outside by airy corridors, for occupying the width of the earlier passages, small anterooms or subordinate rooms precede them. Between these are inserted many small winding stairways for connecting the rooms in different stories. Even dimly lighted and scarcely ventilated corridors in accordance with the taste of the period are not disdained. In spite of all academic regularity, for these reasons, a definite clearness of the plan is therefore missed at certain points.

Nobly arranged are the front vestibules at the entrances on the principal and the garden facades, from which one may look diagonally out into the small courts. Three-aisled vaulted halls lead from them to the great vestibule to the stairway, where the four courts may be viewed from the point of intersection D (Fig. 304), and from which one passes to the state st stairway constructed of the most costly kinds of marbles,and which only leads to the "Royal story". By its plan, dimensions, and the treatment of the walls with marble, the convenient staircase in three flights and with a landing belongs to the most distinguished of its kind. We have before us here perhaps the most costly stairway in the world.

Besides the principal entrances, subordinate entrances for ordinary use are arranged in the courts of the side wings, which correspond to passages through the wings in the courts. Rich perspectives are produced in the direction of the axes N N through the entire width of the building, though not as grand as those along the central axis.

The greatest weight is laid on continuous axes in the "Royal story", as shown by the dotted lines on the ground plan. All doorways lie on the same axis, so that from a point in the angle apartment, the view passes through all rooms on the entire main and side facades. A really grand idea, which may have produced a magical effect when all the rooms were used and lighted on festal occasions, and it may likewise have been effective under daylight. The view along the middle axis E D C, taken through the vestibule and the six central halls, has likewise an imposing effect. The palace chapel is removed

from the external facade and lies in a dignified way before the great vestibule to the stairway, and it is directly accessible from the state staircase.

Of special interest is the addition of a large theatre, the domestic theatre of the court, whose ceiling and 40 boxes, besides the royal box, are supported in the audience room by 12 Corinthian columns of African marble, which were taken from the Temple of Serapis at Pozzuoli. Another actual proof of enthusiasm for antiquity. Men took beautiful things just because they were good enough for their own purposes and for the new art. The great Bramante already applied the same principles as the last masters of the great art period. (See the two plans in Figs. 303 and 304 and also the work mentioned below).[190]

Note 190. Vanvitelli, B. Dichiarazione dei Disegni del Reale Palazzo di Caserta. Naples. 1756.

219. Stables.

Near the private palaces as well as those of rulers, stables (scuderia) are not lacking as detached buildings, or in direct connection with the inhabited buildings. They were not executed by architects as mere utilitarian buildings, but on them
325 likewise was impressed the stamp of spaciousness and of a cert-
326 ain luxury, and the greatest masters did not disdain the solution of such dry problems, as Bramante has shown in his stables of Palace Pamfili in Rome.[192]

Note 192. Compare Letarouilly, p. 195 of text.

Climatic conditions require, at least in middle and lower Italy, a more spacious development of the interior as shown by Fig. 305, where the three-aisled plan is employed with a wide and somewhat higher middle aisle and lower side aisles, lighted by high windows in the sides. The vaults here rest on reddish-gray antique granite columns with well moulded bases and capitals of the Doric order, all of good proportions.

Between every two columns are arranged three stalls.

Chapter 16. Theatres.

220. Theatre Olympico in Vicenza.

"Permanent theatres only originated late, and these were long without an external artistic form". Classical plays were indeed performed in the palaces of the great in the golden age

of the Renaissance. Thus, for example, Lorenzo, nephew of Leo X, had a play by Plautus performed about 1515, in which the scenic equipment may have played a small part.

A semicircular theatre, constructed of wood, was once provided by Palladio for carnival plays in Venice. But his first permanent theatre is the Theatre Olympico, still existing in
327 Vicenza, which moreover was preceded by two very beautiful the-
328 atres built in Venice (1580) at great cost, one oval and the other circular. The Theatre is without external form, but it exhibits in the interior the space for the audience rising like an amphitheatre, in plan a half ellipse, comparable to one-half a Roman amphitheatre, and like that ending with a portico around the uppermost row of seats. The antique theatre and also the amphitheatre were said to serve as models for this portion of the modern theatre, which enclosed the open arena or orchestra, which was succeeded by the rectangular stage of slight depth with richly treated permanent back-ground, similar to those of the Grecian-Roman theatres of Asia Minor.[193]

Note 193. See the Theatre at Aspendos in Part II, Vol. 1, Fig. 284, of this Handbook.

If the audience room, orchestra and stage are borrowed from the ancients, still the idea of making the stage represent a view of a city is to be regarded as original, novel, and indeed an extension of what the ancients only gave in a simplified way. "Not at all a deception in our present sense, but a festal splendor of appearance."

221. Theatre in Parma.

Giambattista Aleotti, the gifted pupil of Palladio, designed 34 years later a Theatre for Parma, which F. Bentivoglio executed. It denotes progress and novelty in theatre construction; the audience room is rectangular in form, in which is inserted a semicircular arched portico extending through two stories, extended straight nearly to the proscenium. The audience space is thereby of the form of an open horseshoe; the rows of seats surround a great parquet, at the end of which the stage opens, not here formed as permanent architecture, but rather like a richly enclosed triumphal arch or a monumental frame decorated by figures and columns, through which events may be

seen as played on the principal stage, enlarged by two rear stages, the ground principles for most modern theatres.

Through veneration for his master, Aleotti gave the arcades of his auditorium the form of the arcade porticos of the Basilica in Vicenza; perhaps he knew not how to offer anything better.

The high porticos were formerly treated in polychromy, chiefly white and gold, as still shown by vestiges of color on the architectural parts. The wooden statues were painted white, the triglyphs in the friezes were likewise white, the metopes red, and the columns were imitative reddish marble; the equestrian statues in the vicinity of the proscenium were constructed of a wooden framework and a covering of stucco.

An engraving exhibited in the Theatre shows us the proscenium with the lowered curtain and the date of the year 1618. A "fragment of the ceiling of the Theatre Farnese painted by Linello Spadi (18 th century)" consists of thin wood with a cupid painted thereon. In the adjoining Museum are two "Murano lustres" from the end of the 17 th century, of white glass with red and green flowers, that formerly decorated this Theatre.

329 The visible trussed roof, now yawning at us over the audito-
330 rium, according to these fragments did not form the ceiling of the room, nor was this even a stretched velarium, but a richly painted wooden ceiling must have been the suitable covering. The architectural structure, its colored architecture gleaming with gold in the rich illumination by candles, refelcted a thousand fold by the facets of the suspended glass lustres, the interior must have had a dazzling effect, when filled by a distinguished society of ladies and gentlemen, shining in satin and silk, gold and silver.

Once the wonder of the entire aristocratic world, this Theatre has now fallen into pitiable dilapidation (Fig. 308; view of the auditorium; Fig. 309; view towards the proscenium).

This architectural work indeed deserved a better fate and on account of historical and artistic reasons was worthy of it,[66] but here again is the fate of the beautiful on earth! Political disturbances, the ceasing of its intended uses and the loss of interest thereby caused, as well as the lack of money, may

have given the impulse toward the ruin of the work.-- Not everything can be preserved by those born later, for the world would otherwise look strangely, and only the living are right!

222. Theatre of Serlio.

Serlio (1584) in the second Book of his work on Architecture (plates 47-52 of the Venetian edition) gives certain statements and drawings concerning the theatre of his period.(How the stage and theatres of our time are arranged). He first treats their longitudinal section, for he gives the steeply rising amphitheatre (audience space), then a parquette and before this a raised stage with inclined floor and a back-ground (Fig. 310). He desires to have the floor at the height of the eye, the front part being horizontal, then gently sloping to the rear wall from which the painted back-ground is suspended, and he gives numerical proportions for these.

The narrow surface of the raised stage is designated by Serlio as the "place of the scene"; the slightly raised surface F is intended for the seats of distinguished persons. The first row of steps belongs to distinguished ladies and the succeeding ones to less prominent gentlemen. Then follows a passage, as in the antique theatre; then succeed other rows for less noble persons, afterwards a second passage and other seats for men of lesser importance and lastly the floor K, intended for the paying common people. In his "Treatise on the Stage", he describes the back-ground and continues thus:--

33/ (See original text for Italian quotation).

We see that everything is considered, which might please the eye.

Serlio distinguishes between three kinds of scenery; the comic, the tragic, and the satiric. The first requires the representation of private buildings, suitable for men in small ways of business, lawyers, retailers, and like persons, but where the ruffian's house, an inn, and a temple are indispensable.

The tragic scene, on the contrary, demands palaces, royal residences and public buildings, but the satiric demands mountains, hills, rocks, some peasants' cottages, flowers and trees.

His last section treats of the artificial lights of the stage,

where be indulges in recipes, and for example, says what must be done in order to produce a sapphire-colored sky, how colors are made transparent, how beams of light may be thrown with a new and bright shaving basin, how a most beautiful and fragrant light may be produced by burning camphor, how thuwder and lightning are made (by rolling a stone ball and blowing varnish powder(pulverized colophony ?) through a light, etc.). But he requires one good thing, a clear ceiling light instead of the doubtful effect of the modern footlights!.

223. Theatre of Buontalenti.

Buontalenti introduced in his Theatre behind the Uffizi in Florence another innovation, for he inclined the parquette floor, as Serlio did that of his stage; he likewise furnished it with an arrangement of the stage, which surprised all Europe and was much studied.[195]

Note 195. Gurlitt refers in his "Geschichte des Barockstiles in Italien" (Stuttgart, 1887) to a full description of the decorations of this Theatre by Baldinucci (p. 47), and further to FurttenbachS, Architectura Civilis, p. 22, 23, --. Gurlitt further speaks of this on p. 491-500.

The arrangement of the auditorium approximates to that of the modern theatre, for around an oval parquette were arranged boxes with radial partitions between them.

224. Theatre of the Bibienas.

With the appearance of the Bibienas, the construction of the theatre and its scenic equipment rose to the highest artistic perfection; they were called by the monarchs of all lands and worked in Dresden, Munich, and Bayreuth (1747); Antonio Galli
332 Bibiena, who died in Milan (1774), was employed in Siena, Pistoja, and Bologna; Ferdinando Bibiena built the Theatre in Mantua (1735), that A. Galluzzi completed, where the internal construction was entirely executed in wood. A beautiful work on "Architecture and Perspectives" was published by Giuseppe Galli Bibiena as theatrical engineer and architect (1740), wherein he subscribes himself as Architectus theatralis primarius ((first theatrical architect), inv. et. del.

225. Theatre S. Carlo in Naples.

About this time (1737), Madrano also furnised plans for the

largest theatre in Italy, that of S. Carlo in Naples, executed by Angelo Carasale. The interior burned in 1816, but it was restored again as before.

226. Theatre in Palace of Caserta.

As the latest should also be mentioned the domestic Theatre of the Court in the Palace at Caserta.(Compare general plan in Fig. 304 and the detailed drawings in Figs. 311, 312). Vanvitelle there again returned to the horizontal or hall parquette, but he adopted the raised and inclined stage with traps, side
338 wings and overhead arrangements. A proscenium with doubled Corinthian columns encloses the opening of the stage, adjacent to which are parquette boxes, above which begin the columns of "Rosso Africano" just mentioned. Between their pedestals extends a balcony and above this are two series of boxes above each other and between the shafts of the columns, just as in many of our modern theatres on this side of the Alps. The columns are connected by semicircular arches, which begin above the entablature and again conceal boxes behind themselves. From the returned entablatures extend ribs to the centre of the vaulted ceiling, which is intersected by compartments above the semicircular openings.(Fig. 311).

The amphitheatre is here dropped and gives place to boxes placed one above another, whereby all spectators are placed as nearly as possible equidistant from the stage, which produces the bad result, that the spectators in the upper galleries or boxes can only enjoy a bird's eye view of the actors and scenery and can have but a doubtful enjoyment of what is presented. (Compare section and plan in Figs. 311, 312). Has theatre architecture then made substantial progress during 150 years since the Bibienas and Vanvitelli? Scarcely, I believe! We combine the arrangements of the antique theatre with the boxes of the Renaissance theatre, -= that is ideed all, -- and even if thunder and lightning can be imitated more naturally, and better conditions of artificial lighting and a higher degree of brilliancy can be produced in the house, the footlights are yet always retained, and whatever new has been created in the plan is at the cost of good taste. Merely the machinery has become more perfect.

227. Other Theatres.

The masters of the 16 th century firmly adhered to the form of the auditorium of the antique theatre and amphitheatre, therefore placing on a relatively large floor area comparatively few spectators, though under the best conditions for seeing and hearing; those of the 18 th century created the innovation of boxes placed vertically above each other with the development of the solid and richly decorated ceiling of the auditorium. They brought many spectators together on a smaller floor area, made possible good seeing and hearing in the house, but lack of taste must be accepted in the bargain, that all the spectators in the higher seats could enjoy the play only in horizontal projection, which might become ridiculous under some circumstances (for example, nymphs and daughters of the Rhine sporting in the waves!).

Likewise famous for its decoration was the Theatre in Urbino built by Genga, in which the first Italian comedy was played, the Calandra of Cardinal Bibbiena, friend of Leo X.

Chapter 17. Universities, Museums, and Libraries.

228. Universities.

The oldest great universities or educational institutions must indeed have been the Museion at Alexandria (280 B. C.), the School of the Philosophers at Athens, and the High Schools in Lyons, Nimes, Constantinople, Cordova, and Syracuse. On the Italian mainland are to be found the first universities accord-
334 ing to modern acceptation, though not furnished with all the faculties (they were chiefly limited to law and medicine), in Ravenna, Bologna, and Salerno, during the 15 th century. A similar one was founded in Naples in 1224 by Frederick II, which was in 1780 transferred and housed in the Jesuit College, built in 1680. In the 12 th century, the University of Paris first obtained a fixed corporate constitution, which was the beginning and the model for all later ones in the West.

Others were founded in Padua, Pisa, Ferrara (again established in 1402), Parma, Turin (founded in 1404), Genoa, etc., which at first already received a great accession of foreign students. These were worthily followed by the various Jesuit colleges in

Rome, Milan, Genoa, and Naples, so far as concerns greatness of arrangement; but the latter excelled everything previously created in grandeur and beauty of architecture. All developed from the abbey and cathedral schools and are products of the late middle ages or of the Early Renaissance. The buildings of the new institutions accordingly resemble the monastic buildings, where the class rooms are grouped around a quiet enclosed court, an arrangement firmly retained for reasons of suitability. Both commons halls and groups of lecture rooms were best so provided. Thus were finally the Jesuit colleges in particular, where the courts become true school courts, whose high porticos plainly indicated the purpose of the rooms lying behind them, like the low arched aisles of the cloisters, which corresponded better to the cells of monks.

The leading idea was expressed in the most beautiful manner, which was to group the class and study rooms around a great court surrounded by airy porticos according to antique principles (these were also employed by Arab architects; compare the schools of the learned in Cairo), and to lend to the building a palatial character. Knowledge must dwell in a noble manner and sun itself in brightly lighted rooms, not be "housed in a cursed damp hole", lost in smoke and mould, and surrounded by the "skeletons of animals and dead men's bones."

The architects of the Renaissance understood how to give to these courts a grand effect with well chosen beauty of details and of ornamentation. A permanent memorial must also be left there by the students, who had formerly attained to academic dignities in these higher schools, by inscribing their names and heraldic arms on the walls, among which are likewise found those of many Germans! There also frequently appear societies of men from the same country, making known the coming races, beginnings of later and still prominent corporate existence!

The court of the University of Pisa originated in the 15 th century and recalls the Cloisters of Brunellesco. Of perfected beauty is the Court built by Sansovino in 1552 with two-story porticos and horizontal entablatures for the University on Padua (Fig. 313). However remarkably beautiful is also the general effect of the columnar court of this University, and

certainly may its conception be ascribed to Sansovino likewise, just as little can I make the master responsible for the detail, especially in the upper story: the ornaments there are rather too rude.

The old lecture rooms are all narrow, their seats rise steep-
ly and extend around in semi-octagonal shape, and they are ar-
ranged in 8 or 9 steps above each other in amphitheatre form.
The instructor stood next the wall containing the windows, --
before the pier between two large window openings; the black-
335 board for sketching or figuring lay horizontally before him on
the table, -- and such is still the custom there today! Gal-
ileo's room is more than plain; it still contains the honorary
gifts of foreign students (also German), which were offered at
the jubilee of the University. The great hall is a large and
bright room with modern seats; the walls are covered by a yel-
lowish tint and patterns, from which effectively stand out
brightly painted shields of arms of the student corporations,
like those on the walls and corridors of the Archiginnasio in
Bologna.

The latter, with its graceful court, was built as the seat of a University by Terrabilia in 1562, but it was arranged for the communal library after the transfer of the University (1803) to Palace Cellesi (with the Court of Triachini). The beautiful Late Renaissance court of the University in Turin was built in 1713 according to the plans of the Genoese architect Ricca.

The University in Parma was built as a Jesuit college in the 16 th century by Galeazzo Alessi.

Likewise as a Jesuit college were built in the 17 th century
the present University in Genoa (as previously stated) and the
Brera in Milan with its incomparably beautiful and grand courts
336 and stairways. As the earliest example of these may be taken
the Collegio Romano designed by Ammanati, and as the grandest,
the Sapienza at Rome with its majestic court.[195] The latter con-
tains two long wings with continuous porticos, which at one
337 end are connected by a wall with an internal corridor, on which
opens in each wing stairs with landings and in two flights,
while at the other ends is inserted a domed church with an ex-
edra placed before it. These four parts of the building enclose

338 the simple and grand court, for which Michael Angelo once furnished plans to Pope Leo X. The building came to a stand, was again taken in hand under Gregory XIII (1575) and was only completed about 100 years later (1660) under Alexander VII, who placed in the building the inscription; "Initium Sapientiae Timor Domini." (Beginning of wisdom is the fear of the Lord).

Note 196. Both are published in Letarouilly, P. Edifices de Rome Moderne, etc. Paris. 1860.

Men were here taught gratis law, theology, medicine, archaeology, oriental languages, and other branches of knowledge. A school of the fine arts was arranged on the halls on the ground level; in the rooms of the 4 th story, a school of engineering was organized by Pius VII and Leo XII, which was opened at the accession of Pius VII (1800-1823), and it was able to celebrate its centennial at the end of the century!

The halls all have a depth of 34.5 ft. with a clear height of 19 ft. in the ground story, are of different lengths (up to 60.6 ft.), and are lighted by side windows next the street, usually two windows to 34.5 ft. of the end of the room. The corridors measure 11.5 ft. in width and are 19 ft. in height; thus the dimensions are nowhere small, each class room being spacious and airy. At the ground level are arranged the halls for perspective and anatomy with seats built in amphitheatre form, for the last of which, the oldest hall for anatomical l lectures, paneled in wood, may have served as a model, (Figs. 314, 315), at least in arrangement.

229. Museums.

Museums for statues, paintings, objects of the minor arts and of the art industries, were not erected in the Early period of the Renaissance as separate buildings for the exhibition of the articles mentioned.

The great men of Italy were indeed intelligent collectors, who placed especial value on inheritances from the antique; but they exhibited them in their spacious and splendid living and reception rooms. They formed intimate relations with the art works, they loved them and were not willing to lose the enjoyment of being daily surrounded by them; but they would likewise acquire fame abroad on account of these possessions, instruct

others by them, and elevate their taste.

The beginning of collections of art objects torn from their original surroundings, or whose possession appeared especially desirable, extends back into the antique period. Ptolemy Philadelphus (284-246) B.C. already established a museum for art works in addition to the library in his Palace, and this tendency was transmitted to the great men and rulers of the Italian peninsual, was retained until the period of the great political changes and was then lost; but it appeared again after the end of the middle ages, and at the beginning of the Renaissance was carried on in the highest degree. What we now find as art museums in Italy, in Milan, Venice, Verona, Bologna, Florence, Rome, Naples, Palermo, and elsewhere, are in the rarest cases buildings erected for this definite purpose.

230. Palace Bargello in Florence.

Palace Bargello, the present Museum for the history of the civilization and art of the middle ages and of the Renaissance, was originally built in 1255-66 as the residence of the Captain of the people and then for the supreme judge (Podesta): it afterwards became the seat of the chief of police (Bargello) and a prison (1574-1782), and only first in the period of united Italy was it arranged as a Museum. The exhibition of art objects was dependant upon the earlier purposes of the building; but it has nevertheless been skilfully made.

339 231. Palace Uffizi in Florence.

Palace Uffizi (Palace degli Uffizi), with its splendid porticos (Fig. 316), was built in 1560-74 by Vasari for the use of the government, and it now contains the famous collection of paintings in the upper story and the national library in the others, with the central archives for Tuscany and the post office. The now glazed loggias, which extend along the southern, eastern and western sides of the building and afford picturesque views of the Place Signoria and of the Arno, and the rooms adjoining them, shelter the magnificent works of art collected by the Medici and increased by the Lorraine princes. The best lighting does not always prevail therein, the rooms are not always of the best proportions, and only the so-called Tribuna decorated by Buontalenti and Pocetti must be the only

hall, built with reference to its purpose.

Moderate proportions in height, the walls covered with red damask, the domed surfaces covered with shells of mother-of-pearl, the skylights not large, -- yet the whole is typical and harmonious! -- Likewise typical and of especial beauty are the grotesque paintings on a white ground on the ceilings of the great halls by Pocetti.(1580).[197]

Note 197. One of these is given in a colored reproduction in Raschdorff. Plates 47, 48.

Thus are likewise the conditions in Venice, Verona, and Milan; works of art are piled up in old buildings for fraternities and palaces, or former Jesuit colleges, wherein the corresponding arrangement of the rooms is frequently changed.

232. Museum National in Naples.

The former Muesum Borbonico in Naples, now Museum Nationale, has now become a great and monumental structure with its vast art treasures, although not originally intended for this purpose. It was begun in 1586 by the Viceroy as a cavalry barracks, but was transferred to the University in 1615, and then in 1790 it was arranged for the Royal collections of antiquities and paintings. The building externally recalls its primary purpose and exhibits on the middle akis of the ground plan a great 3-aisled vestibule with an adjoining semicircular stairway conceived on a grand scale, occupying the entire width of the three aisles; on the right and left of this are two open courts with vaulted corridors extending around them, which at the ends are carried through to the street facade, and adjoining them are a number of rooms of various sizes for statues; in the upper story over the vestibule is a great library hall, the rooms for the gallery of paintings, of the collection of small bronzes, of the collection of coins, whose enclosing walls generally follow the course of the walls in the ground story.

The exhibition of art objects is there actually good and remarkably beautiful, particularly in the tastefully decorated and well lighted rooms of the ground story. This monumental building indeed remains a dry and academical work; but it is not unsuitable for a museum, where a fixed permanency cannot

be counted upon.

340 233. Museums in Rome.

341 The conditions are otherwise in Rome, even if old monasteries and palaces are there not excluded from becoming museums. (Palace of Conservators, Museum Thermae, Museum Lateran, etc.).

Here are first the buildings of the Museum of the Vatican, which has from small beginnings developed in the course of time into separate structures built for the purpose and leading the remainder of cultured Europe.

The commencement was made by Popes Julius II, Leo X, Clement VII, and Paul III, in the Belvedere built by Bramante under Julius II. But since the good in this world never takes a straight course, the endeavors of these art-loving rulers were likewise obstructed. Pius V (1566-72) removed these collections, gave away some of their contents, and Clement XIV d.1774) first decided again to retain and extend them. Thus arose under Clement and Pius VI the Museum Pio-Clementine, arranged by Visconti, under Pius Vi the Hall of the Greek Cross, the Hall of the Rotunda, the splendid Hall of the Muses with the two square additions, all from the designs of Simonetti (Fig. 317).

The circular domed Hall of the Biga, the Hall of the Candelabra and of Animals adjoined the Court of the Belvedere; to the originally square court with cut-off angles was added the in-
342 ner portico in 1775; in 1803, the halls at its angles were rebuilt as cabinets. Pius VII (1800-23) added the Museum Chiaramonti and in 1821 he had the Bracchio Nuovo built by Raphael Stern, with its 14 antique columns of cipollino, alabaster, and Egyptian granite. Gregory XVI (1831) added the Egyptian and Etruscan Museum; Pius IX and Leo XIII likewise did not remain inactive in the completion and decoration of the Vatican Museums, by which their fame was fixed.

The arrangement of skylights and high side lights is consistently carried out in these new museum buildings for the reception of statuary works, and it remains typical for all later exhibition rooms for allied purposes. The exhibition of the sculptures in the large circular Hall (Fig. 318), in the Hall of the Muses, and in the Bracchio Nuovo (Fig. 319), is a model and type, and it will likewise remain first, so long as beauti-

beautiful works of art also require to be beautifully and worthily housed!

The purpose of museums already changed during the last century. The intimacy between the owner and the work of art has disappeared; sole enjoyment of the objects collected with toil and often at great cost is no longer desired; they are desired to be for the use and benefit of the cultured and of the great multitude of mankind; all are allowed to take places at the
343 great table, where the divine entertainment is to be bestowed. This great cosmopolitan tendency could only have arisen in that enlightened period of the Renaissance, which was to fruitfully affect even our time!

234. Libraries.

Ancient Egypt already possessed great collections of books (rolls of papyrus), which extended back into the 19 th century B. C. The Pisastratides in Athens had similar ones; in the form of burned clay tablets covered by cuneiform characters were the contents of the library in the Palace of King Assurbanipal in the 7 th century B.C. made permanent. Libraries for the purpose of instruction and for general use, the older with works on wooden tablets, are known to us from the period preceding Alexander. Of the Alexandrine period, there are to be mentioned the magnificent library of the Museion in Alexandria, which possessed 700,000 rolls before the great fire, and also that at Pergamon. This was built fireproof and was surrounded by porticos, facing the east on account of the morning light; to protect the eyes, the floors were decorated by greenish marble; the stack-room was closely fitted with frames extending to the ceiling, many of these being made of costly materials (gold and ivory). One of the first public libraries on a grand scale was planned in Rome by Caesar. Augustus had
344 one built on the Palatine hill; there[199] were 29 public libraries in Rome in the 4 th century A. D.

Note 199. Compare Pauly's Real-Encyclopädie der Classisches Alterthumswissenschaft. New edition by G. Wissowa. Stuttgart. 1896-1900. III. Bibliotheken. p. 403-424. Also:-- Clark, J. W. The Care of Books. Cambridge. 1901.

Most of these treasures disappeared in the period of the migrations of the nations; the problem then fell to the monasteries, to collect together the remainder, evidence of which is afforded by the libraries of the Monasteries at Mt. Cassino, Corvey, Fulda, S. Gall.(Abbot Gosbert, 816-836). After the suppression of the monasteries and after further losses during periods of war, these books came into the possession of the government or of cities.

In Italy during the period of the Early Renaissance, Pope Nicholas V(1447-1455) lacced the Vatican Library into existence. A library was founded in Florence in 1444 by Cosimo the Elder, which was constantly increased by the Medici; the Library Laurenziana. In these collections less regard was paid to the worth of the contents, but much more to the external magnificence of the works, their beautiful manuscript, their decoration by miniatures, and their costly bindings.

Halls and rooms in one or more aisles appear in the older plans, in which were arranged reading desks for the folios, which were fastened by chains, and seats for the readers.

One of the earliest library buildings, the Library Malatestina in Cesena, was built by Matteo Nazio in 1452 for Domenico Malatesta, a long 3-aisled room covered by cross and tunnel vaults, the central aisle left free for passage, only the two side aisles being furnished with desks for the 4000 manuscripts. The room is divided into 11 bays and has windows on both sides, thereby being abundantly lighted.(Fig. 320).

Similar to this is the Library of S. Marco built by Michelozzo in Florence, whose plan and section are reproduced in Fig. 321.

235. Library Laurenziana in Florence.

The Laurenziana in Florence may follow these as being a more important architectural undertaking, begun according to the designs of Michelangelo and completed by Vasari and Ammanati, with its capricious vestibule and entrance steps.

The room is likewise long here but contains a single aisle 34.1 ft. wide and 156 ft. long; it receives light on two sides through rectangular windows of stained glass, that begin 7.9 ft. above the floor with axial distances of 9.86 ft. The

walls of the hall are subdivided by pilasters and are animated by rectangular niches above the windows. The ceiling is constructed as a rich coffered ceiling of wood richly carved and left in the natural color, its design being repeated in the floor in brownish-red and yellowish tiles executed by Tribolo. The stained glass is executed in grotesques on a transparent white glass ground and therefore interrupts the daylight but slightly.[200]

Note 200. For good drawings of this hall and its vestibule, see Raschdorff, Plates 31-37.

The beautifully carved seats with reading desks (Fig. 322) and their delicate ornamentation were designed by Battista Cinque and Ciapino; the drawings for the glass windows are ascribed to Giovanni da Udine.(Compare Fig. 323, where the similar composition for a glass window is reproduced from the Bargello Museum).

236. Vatican Library in Rome.

The Apostolic Vatican Library, as already stated, was founded by Nicholas V, but it did not receive equally careful support after the death of that Pope; it was rather neglected and was first taken up again under Sixtus IV, extended by Sixtus V, who caused the erection by Domenico Fontana of the existing buildings, which intersect the great court of Bramante. The great Hall, in which 46 low cabinets extend along the walls and around the piers, is 232 ft. long, 51 ft. wide, and 29.5 ft. high, covered by vaults, that rest upon 6 massive piers. The magnificently decorated room shows on its ceiling and walls paintings of the 17 th century; Pius IX had the beautiful marble floor executed. Richly carved tables with precious marble slabs and vases adorn this most splendid of all library halls. (Fig. 324).

237. Cathedral Library in Siena and other Libraries.

But in beauty and in artistic contents, this room is excelled by the Cathedral Library in Siena.(Hall of Piccolomini, also called Library), built at the order of the subsequent Pope Pius III in 1495 and decorated with frescos by Pinturicchio in 1503-1507. The ceiling is formed as a coved ceiling with horizontal panel, the cove intersected by compartments, and it is very

effectively painted with grotesque ornaments in full colors. The lower part of the walls is covered by a wainscoting 9.1 ft. high, and it is furnished with tables standing 2.46 ft. before this, on which lie the missals ornamented by costly miniatures.(Fig. 325).[201]

Note 201. A good view of the interior of the room is given by Plate 5 of Polychrome Meisterwerke etc., by H. Köhler. Leipzig. 1870.

238. Other Libraries.

A change in the design of library fixtures was caused by
342 the invention of printing, together with the great production of printed works, which required another mode of exhibition. Instead of laying out precious and artistically executed works, the printed books were piled in cases extending to the ceiling and along the walls, which were divided into stories by galleries. We find the books in the Library of Philip II of Spain in the Escurial (Fig. 326) placed in separate richly carved cabinets (1563-1584), the lower supports receiving folios, above which are arranged desks for books; over the latter are the bookcases adorned by Doric columns with shafts of different heights.

Thus was also the arrangement in the Library of the Dukes of Urbino, the bookcases being placed against the walls.

The Ambrosian Library in Milan, arranged in 1603-1609 by Cardinal Borromeo, likewise shows the arrangement on racks along the walls with a gallery extending around above the eight lowest shelves, to which small winding stairs lead. The hall is covered by a tunnel vaulh decorated by stucco and subdivided into panels.

349 The state and city libraries of most Italian cities are notable, which are nowhere wanting, and they all exhibit an arrangement allied to that last mentioned. The tasteless modern location in a stack-room, wherein all artistic treatment of the book-shelves is usually omitted, is scarcely found in any place.

What we today have in our store libraries is generally only a combination of the older and of the later Italian systems, where the book-shelves occur instead of desks, retaining the

middle passage and the arrangement, which we have seen in S. Marco in Florence, in Cesena, and in the Laurenzian Library. Here again have the Renaissance masters been our instructors.

The Library building in Palermo should also be mentioned on account of its grand court with its original treatment between the two superimposed arcades.(Fig. 327).

Chapter 18. Government Buildings.

239. Buildings for Administration, etc.

Another member in the series of public monumental buildings is formed by the office buildings with their offices for the higher state and city administration. Neither was money spared here; these buildings are permeated by the same artistic spirit as those serving for higher uses. The power and dignity of the state must also be expressed in these works, which was again best carried out by the Republic of Venice, for at about the end of the 15 th century, it had the so-called "Old Procuratio" built by Battolomeo Buono from Bergamo, and which reflects the expression of a "splendid and joyful existence." It served as an official residence for the procurators of S. Marco and contained the most diverse offices therefor, of which nothing is now to be recognized in the interior.

The Fabbriche Vecchio near the Rialto served as the city offices and warehouse, was built by Scarpagno in 1520, and Sansovino later added the rich Fabbriche Nuove adorned by pilasters.

A warehouse with offices for the German merchants, the Fondaco de' Tedeschi,[202] was again rebuilt after the fire in 1505 at the cost of the state by Fra Giocondo da Verona (1506) and was simply treated on its exterior, but it was decorated on the surfaces of its facade by paintings of Titian and his pupils, which have now disappeared. "If well preserved, the building would have been one of the foremost buildings in Italy."

Note 202. See Burckhardt, J. Der Cicerone, etc. Basle. 1860.

The most magnificent exterior is possessed by the highest administrative building of the state, the Palace of the Doge,

in its court facade by Antonio Bregno and Antonio Scarpagno.

But Palace Uffizi in Florence appears simple and earnest on the contrary, which was built by Vasari about 80 years later than the Procuratio and for the same purpose.

Between the magnificent and gay architecture of the Venetian masters and the earnest style of the Tuscans stands the Cancellaria of Bramante in Rome, where the definite purpose is ex-
350 pressed on the building in the noblest and most distinguished manner, particularly in the expressive columnar court.[203] (See Art. 202 as well as the plans in the work mentioned below).

Note 203. Letarouilly, Vol. 1, Pls. 79-90.

Likewise the beautiful, though no longer existing, Bank of the Medici by Filarete in Milan must again be mentioned here, the stately and dignified palace with rusticated ground story, the beautiful entrance portal (Fig. 10), the Gothic-like 12 windows in the upper story, and the cornice with consoles like the antique.(Fig. 9).

Chapter 19. City Halls.

240. City Halls.

The city halls of the Renaissance, sometimes called Palace del Consiglio, Palace del Ragione, Palace Prefetizzio, or Palace Prefettura, sometimes Palace Communale or del Commune, Municipio, etc., follow more or less the mediaeval models in their parts and in the arrangement of the rooms. Great halls, corresponding stairways, halls for assemblies and sittings, small offices, chapels, living rooms, broad corridors opening toward the street or into internal courts, which afford access to the different rooms, a regular arrangement of the windows with usually large axial distances on the facade, are the characteristics of these city palaces. Sometimes appearing simply defiant externally, they sometimes shine in costly materials , with color and gilding.

The mediaeval models in Florence and Siena, there a fortress-like form, here a brick building, are supplied with a gallery and battlements for defense, are mostly defended by a high tower (Fig. 328) 309 or 335 ft. high, -- arrangements that also appear elsewhere on like buildings of the same period.(Bologna,

Vicenza, etc.).

241. Palace Pubblico in Pienza.

These effective additions had a purpose and meaning as look-out towers and later as signal or clock towers (Siena), which was retained in the same manner in the Early Renaissance, as shown by the example in Fig. 329 from the small Palace Pubblico in Pienza, built about 1450.

The open portico on the ground level, the massively developed upper story with its round-arched windows, and the tower
357 picturesquely placed at the side and not very high with its upper part crowned by battlements, gives a characteristic appearance to the whole, in which two tendencies contend with each other. The battlements of the tower are already omitted from government buildings and residences, whose architecture already breathes classic repose, while the tower still proudly looks down on the Place.(Fig. 329).

242. Palace Prefettizzio in Pesaro.

Undeniably showing the stamp of the Early Renaissance but burdened with mediaeval accessories is Palace Prefettizzio in Pesaro, whose principal parts were built by Duke Guidobaldo of Urbino, who died in 1508.

Its portico next the street still has pointed arches; the ornaments frequently have a Gothic character; but on the main facade the round-arched portico rests on rusticated piers, above which 5 colossal windows are arranged in the upper story without reference to the axes of the arcade. The window openings are flanked by Corinthian pilasters, the frieze above these is decorated by palm-leaves, and on each cap stand two cupids with garlands, shield of arms, and bands. The central window is provided with a balcony. A stone crowning cornice without consoles with a colossal egg-and-dart moulding is, like the building, effective by its size. The magnificent part of the interior is a large hall 53.2 ft. by 132 ft. in dimensions with a carved and painted coffered ceiling, octagonal panles between those of[204] lozenge form, whose large rosettes hang from a blue ground.

Note 204. A sketch of the facade is to be found in Lübke's Zur Italienische Kunstgeschichte. Zeit.f.Bild.Kunst. Vol. 5. (1879) p.355 et seq.

352 243. Palace del Commune in Ancona.

As on the City Hall in Pesaro, a mixture of forms is likewise found on Palace del Commune in Pesaro, built by Francesco di Giorgio in 1470, whose court is surrounded by pointed arcades with archivolts like the antique, which rest on massive pillars, to which are attached small angle columns after the mediaeval fashion,.while pilasters with palm-leaf capitals animate the surfaces of the pillars and appear as works of the Early Renaissance.(Compare the sections of the pillars in Fig. 286). As further works in this phase of the style are the two carriage portals in the court of the City Hall, formed according to the style of the Roman triumphal arch, while they exhibit slender Composite columns beside the round-arched openings, one bearing the date 1400, while the upper and richer one by Matteo da Ancona is dated 1493.

244. Palace del Podesta and Palace Communale in Bologna.

The present City Hall in Bologna,:formerly Palace del Podesta, dating from the beginning of the 13 th century, was partly rebuilt in 1425 after the fire by Fieravante Fieravanti and was mentioned among Bolognese palaces.(See Art. 112). Remarkable therein is the reappearing great hall, the so-called Hall del Re Enzio.

The Palace Communale or del Governo likewise dating from the middle ages (begun 1293) and provided in very recent times with the most varied additions, and also containing a stairway by Bramante (1509), is a massive building with galleries, halls with frescos, courts, stairways, and ornamental statuary, provided with pointed arcades next the Place, crowned by battlements, and fortified at the angle by a heavy clock tower with a Barocco termination, just as the massive mediaeval tower is added to the City Hall just mentioned.

As an important part from the Renaissance period should be mentioned the treatment of the chief entrance, which was originated by Galeazzo Alessi[205] and enriched by the construction of a niche by D. Tibaldi.(1581).

Note 205. Compare Malaguzzi-Valeri, p. 210 and Fig. 73.

The round-arched entrance gateway is flanked by coupled Doric columns on pedestals, that support a triglyph-frieze; above

this extends a balustrade, from which rise coupled Ionic columns with a great low pediment. In the middle of the colonnade thus formed in the upper story is arranged a round-arched flat niche, in which is enthroned the seated and blessing bronze statue of Pope Gregory XIII (Buoncompagni of Bologna) by Manganti. Beneath the figure appears in a very effective way the great papal arms, -- on the whole an even richer than massive portal of the developed Renaissance, but which in spite of its different forms does not influence the effect of the facades in general.

245. Palace Rector in Ragusa.

In the category of City Halls already mentioned also belongs Palace Rector in Ragusa with its very interesting portico and court with the open stairway, but which was only added in 1667. The building itself was planned in 1388; an explosion of powder destroyed it in 1435; it was affected by a similar catastrophe in 1462; Michelozzo was called upon in 1464 for advice concerning its restoration, with him came a native of Dalmatia, Giorgio Orsini, who then had to put the building in order again, for this probably merely referred to repairs.[206]

Note 206. Also see Berlepsch, H.E. and F. Weysser. Bauten in und um Ragusa. Zeit.f.Bauw. 1894. p.217 et seq.

353. 246. Palace del Consiglio in Verona.

Fra Giocondo (1435-1517) broke with mediaeval reminiscences in his Palace del Consiglio at Verona.

The work breathes gay repose and joyousness; everything of a gloomy and heavy nature is rejected from it. A deep loggia with marble columns and round arches, which rest directly on Corinthian-like capitals, forms the lower story, which is raised only 5 steps above the street, from which it is separated by a balustrade; above this rises the upper story subdivided by pilasters and with very beautiful double windows, and crowned by a main entablature like the antique, above which are placed free statues corresponding to the pilasters, but without the addition of a balustrade. Mouldings, panels of pilasters, and the capitals are gilded, the wall surfaces are subdivided into panels and are brightly painted with the noblest forms of all details. (See Fig. 48). In the full sunshine and

under the blue sky, -- a wonderful architectural monument, which smilingly throws down the glove in challenge to the preceding art period and to the surrounding buildings! The interior has been much rebuilt, yet it still contains some beautiful marble doorways.

354 247. Loggia del Consiglio in Padua.

355 On the same elevation stands the precious Loggia del Consiglio in Padua, built by Biagio Rossetti, an Early Renaissance work of the noblest type (Fig. 330), executed in white limestone. On a high base rests the portico, to which a massive flight of steps leads up. The windows of the upper story are grouped by twos and threes and leave broad and quiet wall surfaces above the windows, and a high wall with a rather stumpy main entablature.

248. Palace Communale in Brescia.

Of similarly noble appearance is Palace Communale in Brescia, begun by Formentone in 1508 and called "The Loggia". The building is detached on all sides and is divided into two unequal parts in the lower story, the larger being covered by 9 cross vaults supported by 4 columns and forming a hall of
356 powerful effect. (Fig. 331). Peculiarly constructed Corinthian wall columns subdivide the massive piers that receive the upper story, while the adjacent arch spandrels are animated by deep medallions with inserted busts of Roman emperors. The wall surfaces of the upper story contain rectangular windows enclosed by pilasters and richly ornamented caps, which have panels with disk medallions of dark marble, while all other parts of the building are made of white marble, and separated by pilasters; an antique entablature with rich frieze terminates the whole at top, which above this is also crowned by a balustrade with vase-bearers placed before it as water-spouts. The exterior is rather pleasingly beautiful than earnest. The windows in the upper story are ascribed to Palladio and
357 the frieze to Sansovino; the balustrade is on the contrary
358 359 modern, just as the unfinished octagonal structure behind the latter is an inharmonious later addition. (Figs. 3311 333).

A fire in 1575 destroyed the great hall and the vaulted roof covered with lead, with which also disappeared valuable paintings ascribed to Titian. Vanvitelli ruined the exterior in 1769 with his additions (Fig. 331), and now in 1902 are hands

laid on the building again to destroy the wonderful work by rebuilding it, instead of piously preserving it!

249. Palace Pretorio in Lucca.

As a developed and austere work of the Italian Early Renaissance (15 th century) should be mentioned Palace Pretorio in Lucca by Matteo Civitale (?), which shows a portico with 4 round-arched openings on the facade resting on columns; this is succeeded by the upper story with Tuscan double windows, with open round panels at top, above which are arranged an attic story with small rectangular windows and a Corinthian cornice with consoles.

250. Palace Basilica and Palace Municipio in Vicenza.

The so-called Basilica in Vicenza and the opposite Palace del Capitano (now Municipio) should indeed be added here as magnificent communal buildings. The nucleus of the former, formerly Palace dell Ragione with the adjacent red-brick tower 269 ft. high, still has pointed arches and it was only in 1549 enclosed by the wonderful portico of Palladio, executed in white marble. The plan (Fig. 336) contains on the ground level and within the four walls an internal hall covered by cross vaults, whose ceiling is supported by 12 piers. The stairs to the upper story lie free within the porticos and lead to the great hall of a single aisle, which is covered by a cylindrical roof built of timber arches (Fig. 335); this is held together by iron ties at two levels, which are omitted in Fig. 335 in order to better show the form of the roof and of the descending beams.[208]

Note 208. Also in the so-called Hall of the mediaeval Palace della Ragione, -- built as a "Basilica of Law" in 1172-1219 in Padua, which has a single hall 272 x 92 ft. area and is 79 ft. high, but which was only built in 1420, -- the similar beams are composed of 3 logs in depth and are likewise tied twice, where the ties are twice suspended. The longitudinal connections are in both cases effected by the internally visible boards of the sheathing of the roof; the side thrust is directly neutralized by the iron tie-rods fastened to the pairs of beams.

But the exterior likewise belongs to the most splendid under-

undertakings of the later Renaissance and it is at the same time the masterpiece of Palladio (Fig. 334), solidly executed in the most durable and most distinguished material used in large blocks, as shown by the voussoirs of the arches, which all extend through, as well as the architraves, for which whole slabs were employed. Not easily will a grander and more beautiful architectural monument (Fig. 337) be again found anywhere on God's green earth, than when from the side street on which the Municipio abuts, one looks across the Place towards the Basilica, which has even a mightier effect at sunset, when tower and roof appear bathed in the glow, while the light gray architecture of the Basilica is covered by a bluish shimmer and rest and silence prevail on the Place!

360 Chapter 20. Hospitals and Asylums.

251. Hospitals.

"A sorrowful purpose, but a pleasant exterior," says Sabellicus of a Venetian hospital for the plague, and this saying is true of most hospitals in Italy.

Like churches and palaces, these buildings were also conceived in "the gayly beautiful Renaissance style," but grandeur and suitability were not neglected therein, which arouses our surprise today. Whoever indeed applies the scale to these buildings and their arrangements, that our modern physicians have created on this side of the Alps, would do them injustice; but he would also err, if he believed, that the Italians of the 20 th century are not inclined to understand the goodness of our arrangements.

These monuments of the piety and benevolence of the citizens and rulers in Italy go back to the 13 th century, to which period belong the Hospitals standing in high esteem, the Maria della Scala in Siena and that of Maria Nuova, founded in Florence in 1285. Both institutions were to be surpassed by the erection of the "Hospital Maggiore" in Milan.

252. Hospital Maggiore in Milan.

Filarete gives detailed information concerning the latter in his Treatise on Architecture, when he introduces a report to his princes with the words:-- "I will specify one to you, as I

I have built one in Milan, and I will describe its arrangement to you: after the location was fixed, the extent of the building was determined at 400 × 160 braccias, which should be beautiful and for the service of sick men and women, and likewise useful to illegitimate children." He further lays especial emphasis upon the convenience and the cleansing of the privies, whose arrangement corresponded to the location of the city ditch, that flowed along the building site, and which should also be utilized to receive all wastes produced in the hospital.

Note 209. Published by W. von Oettingen. Vienna. 1890. P. 332 et seq.

Filarete thus described the details of his plan, his foundations and canals within the same,[210] next the ground story, the position of the bottom of the cellar, which he placed one braccia higher than that of the watercourse that washed out the privies, then these themselves, -- between each two beds being a little door opening into the vault, where the sick found a seat with an opening through which all sewage passed into the canal in which the water ran. The water washed out the latter and carried away everything and no bad smell could arise, since the privies first have the additional advantage, that they were always closed, were washed out and cleansed by the water, and because at every 10 braccias were placed openings for ventilation, extended upward through fixed pillars. If these privies should ever smell badly, they would then be ventilated by these flues, which extended above the roofs. They likewise received the rain water from the latter and conducted it into the sewer channels.

Note 210. See the same work last mentioned, p. 338.

Then comes the locating of the external and internal stairs, also the arrangement of the subordinate rooms as social rooms, dispensaries, bath-rooms, etc., and further that of the wards for the sick, of the main court between the divisions for men and women, of the mortuary, the dwelling for the clergy, the
361. hospital chapel, the plan for the separation of men and women, the kitchens, etc. Nothing is overlooked, nothing forgotten; everything is considered; the architect does not lose himself

on the facades; he lays especial emphasis on suitability and on the technical details.

To the Treatise mentioned are added a sketch of the ground plan and a drawing of the facade, which we reproduce from Oettingen's pamphlet in Figs. 338, 339.

But only the right wing of Filarete's design was executed, and this was only done in simplified form. The corner stone laid with great ceremony on April 4 th, 1457, the building was carried on by Filarete himself until 1465, at which time he was compelled to yield to the intrigues of his Milanese superintendent and colleague. "I am hated here", he wrote at that time, on the occasion of the treatment received by him. After his departure, the building was superintended by Solari and other Lombard architects. The magnificent principal court surrounded by Renaissance arched porticos was completed by Ricchini; (1624; compare the details in Fig. 287); Carlo Buzzi and Giorgio Rossoni undertook to carry on the work after Ricchini and brought it to an end in 1806.

Hence the work continued for three and a half centuries. But its external architecture, which according to the preceding lacks a unified character, the already mentioned pointed-arched double windows, which exhibit an interesting combination of Gothic and antique forms (compare Fig. 8), and the archivolts made of deep red terra cotta with their ascending vines and cupids climbing in them, always remain a reason for the fame of Filarete and of the increasing Renaissance.[212]

Note 212. Ferdinand Cassina gives in the work "Le Fabbriche piu cospicue di Milano" (Milan, 1844) the plans of the existing design with the remark, that by grandeur of idea and richness of execution, it must be mentioned in the highest rand in Europe.

362 Nine internal courts, partially enclosed by porticos on col-
363 umns, have been built in time, as in the plan of Filarete, surrounded by the different buildings of the institution, which makes possible a separation of the various patients, and these are so large as to afford air and light abundantly to the different buildings. The same is likewise true of the great halls for the sick, in which the beds are placed far apart,

and where the individual patients are supplied with a volume of air as in no other hospital in the world.[214]

Note 214. Compare the plan and section in the work mentioned in Note 212.

The domed church intended by Filarete with four flanking towers like minarets for the centre of the great court, a lofty monument of the Christian religion, was omitted and forced to give place to a hospital chapel of moderate size, which partially occupies one side of the great Ricchini court.

253. Hospital S. Spirito in Rome.

As a foundation of the time of Innocent III may be mentioned the Hospital S. Spirito in Rome, begun in 1198, which by Sixtus IV in 1471 and by rebuilding under Innocent VIII was made the most important hospital in Rome. A great part of the buildings was erected by Baccio Pintelli, perhaps also by
364 Pallajuoli, other portions by Antonio da Sangallo and by Fuga.

The building now contains a vast hall of a single aisle for fever patients, one adjoining this at right angles for wounded persons, rooms for surgical operations, other large and small rooms for different patients, altogether having 12 wards and 1680 beds; then an anatomical museum, a library, dispensary, instrument room, etc., and in an addition is the asylum for foundlings, and another for patients affected by contagious diseases; these rooms can receive 800 patients and 500 foundlings.(Fig. 340).

254. Other Hospitals.

Another design in Renaissance seems worthy of mention on account of the unusual simplicity of the building; the Hospital S. Giovanni de"Genovesi dating from the end of the 15 th century, founded by the distinguished Genoese Maria Duce Cigala. Much has been changed in this hospital in the course of time, yet the court has remained unchanged.

As an especially architectural work may be designated the Hospital degli Innocenti in Florence, begun in 1419 by Brunellesco at the cost of the silk-workers and extended in 1427 by Francesco della Luna, but only completed in 1451. Its w wide and airy halls are elevated above the Place by a high flight of steps, and it is built of grayish-green Mancigno

sandstone with the charming terracotta medallions of the Robbias as ornaments of the spandrels of the arches, and with the low upper story and its simple rectangular windows with angular pediments and plastered wall surfaces, it remains an unimpeachable product of the Florentine Early Renaissance. The ar-
365 chitectural treatment of the square internal court is shown by Fig. 341, while Fig. 342 represents the entire arrangement of the ground plan.

Florence exhibits in this building one of the first foundling asylums, although the suburb of Pile at Ragusa makes the claim, that it was erected as the first foundling asylum in Europe.

A great Hospital for Incurables, called Pammatone, was built in Genoa at the cost of a learned jurist and under the direction of the architect A. Orsolino, with its court measuring 65.6 by 118 ft. and 36 ft. high. Through the portal executed in white marble, the way to the interior leads by a grandly arranged vestibule into a surprisingly beautiful court. At first only intended for women, it was enlarged by the addition of another building for men. The modes of removal of wastes from the wards for the sick and of their ventilation are interesting. (Fig. 343). The latter is effected by a peculiar system, for between the ceiling of the hall and the floor of the upper story is left a hollow space, which is furnished with exhaust flues and is lighted by small windows, in order to make possible an effective ventilation of the hollow space. Openings into it from the wards are furnished with valves regulated from below, by which the air can pass from the hall without the necessity of opening the windows.

In conclusion and to emphasize the saying of Sabellicus was the Hospital del Ceppo conceived in Pistoja, whose founding
366 likewise extends back to the period after 1277, but which was rebuilt and adorned by the magnificent projecting structure, with the airy halls and its ever beautiful and brightly colored frieze by the Robbias (1525-35) representing the seven works of charity. Can there be a more elevating exterior, a more appropriately rich decoration for a hospital than this frieze?

255. Hospital for the Plague in Verona.

A hospital for persons ill of the plague, or for those suffering from other epidemic diseases, was built by Sanmicheli for the city of Verona. His plan is published in the work mentioned below.[215] Around a court 788 ft. long and 358 ft. wide ara arranged small adjacent and separate cells 15 ft. square with a corridor 11.3 ft. wide and 16.1 ft. high before them. A small church stands in the middle of the court, which is divided by walls into four parts of irregular form, so that one-fourth of the little church may always be seen by the occupants of the cells on one part of the court. Adjoining the building containing the cells are placed the administration rooms and the official residence of the director.

Note 215. Ronzani, F. & J. Luciolli. Les Monuments Civils, Religieux, et Militaires de Michel Sanmicheli, Architect Veronais. New Edit. by L. Dianoux. Genoa. 1878. Pls. 58-60.

Vasari says of this building, "that it might have been much more beautiful, if among the founders had been more persons with large souls."

256. Almshouses.

Other buildings on benevolent foundations are those intended to receive the poor, usually extensive structures known in Italy as Asylums or lodgings for the poor people (Albergo dei Poveri), and which always belong to the late period of the Renaissance. They are more or less charitable and reformatory buildings; poor persons of either sex and of every age were received; orphans and foundlings learned a trade; men and women were set at work of all kinds; charity opened an asylum for the defective; justice provided rooms for the punishment of the guilty.

367 Genoa possesses one of the most notable and largest designs as an asylum for the poor in its Albergo dei Poveri. This building was begun in 1654 from the plans of Antonio Corradi, but it was only completed by Baptista Ghiro. It has external dimensions of 541 × 476 ft. and contains 4 courts and great double stairways. A church forms the central point, as likewise the case in the Albergo dei Poveri in Palermo, whose plan is reproduced in Fig. 344.[217] The structure was commenced in 1746 by

the architect Orazio Turatto, but was never completed. An atrium enclosed by columns lies before the church of the institution; two columnar courts are arranged on its right and left, adjoining which are work rooms, dormitories and refectories with their accessories.

Note 217. From Hittorf, J.J. & L. Zanth. Architecture Moderne de la Sicile. Paris. 1835. -- The Genoese building is published in Gauthier, M. Les plus beaux Edifices de la Ville de Genes et de ses Environs. Paris. 1830.

For the same purpose was erected in Milan in 1759 the Casa di Lavoro (Work-house) by the architect Crocec and the Reclusio or Seraglio in Naples by Fuga in 1751.

Chapter 21. Prisons.

257. Prisons in Rome and Venice.

The award of imprisonment for certain offences is a measure first belonging to the modern period, first occurring in the second half of the 16 th century, indeed originating in England, Holland, and North Germany. Innocent X built in Rome the prisons known under the name of Carceri Nuovi during the years 1644-55 for the solitary confinement of young vagabonds and the like, and Clement XI erected on the same site in 1704 a reformatory.

But even earlier, the Republic of Venice had constructed in the Carceri or Prigioni Criminali , from the designs of Antonio da ponte in 1589, a prison with small and separate cells, which is still in use as a prison for ordinary criminals, and of which John Howard said in 1780 in his work on prisons, that it was the strongest which he had ever seen, and that no
368 fever and no notable disorder appeared in it. And Tomaso Temenza writes in the biography of da Ponte, that in all Europe was there no more convenient, stronger, or better built prison. It is constructed of Istrian limestone, has small oblong windows with double iron gratings, and it accommodates 400 prisoners, exclusive of the unhealthy cells, which have neither light nor ventilation.

It is worthy of note, that the cells do not adjoin the external walls of the building, but that a narrow passage extends

there, from which the cells are entered. Communication with the external world, such as is always possible in our smaller prisons with cells, appears to be here prevented by the high location of its windows. (Fig. 345). This prison was connected with Palace Doge by the Bridge of Sighs built by Antonio Contino.(1595-1605). Its so peculiar and characteristic architecture has become typical for prison buildings until our time, though generally with the omission of the rusticated pilasters.(Fig. 346).

Chapter 22. Granaries, Exchanges, Market Houses, and Loggias.

258. Granaries.

Granaries were already in use, even in antiquity. They were maintained in the middle ages and also in the period of the Renaissance in the great commercial cities. An open granary was built in 1284 on the site of the Church of S. Michele in Ordo, and in place of it the present building of Or S. Michele was erected in 1336-1412, in which only the lower story serves for church purposes, while the upper rooms were used for granaries until the middle of the 16 th century. This building was affected by Renaissance art, for Donatello (1413), Ghiberti(1414), Verrochio (1483), and Giovanni da Bologna (1602), decorated it by statues.

Note 218. See Part II, vol. 2, Figs. 298, 299, of this Handbook.

To Galeasso Alessi is ascribed a similar useful building in Genoa,(1625), whose ground plan and section are given in Figs. 347-349. Four storehouse structures in five vaulted stories are connected by a common vestibule and form a stately and simple whole, yet which does not lack decoration of the facade. surfaces by pilasters. Nowhere is mere utility expressed!

259. Exchanges.

To these warehouses are added exchanges and markets, where produce and goods were dealt in and sold at retail.

As a most beautiful example of an exchange may be mentioned that built by Alessi in Genoa, which was begun in 1570 and completed in 1596. According to the plan in Fig. 350, it is

an undivided room, that receives light through arches and windows on three sides and has a solid wall on but one side. The exterior has dignified proportions, the beautiful details peculiar to Alessi, and white monolithic marble columns; but the interior has a tasteless effect with its plain vaulted ceiling of wooden logs with plastering on reeds. The roof trusses of wooden round timbers have already been described in Art. 63. The room is without any visible ties; therefore the airy and open lower portion is no longer invariably plumb, yet this has already been the case for 300 years!

260. Market Houses.

The so-called Mercato Nuovo in Florence may serve as an example of a market hall, whose plan is given in Fig. 351. Twenty sandstone columns support the ceiling composed of 12 vaults. The structure receives a firm support by 4 great angle piers and 4 intermediate piers set at the ends. The former are decorated by niches, like the piers of the Uffizi porticos; like
371 those again, they bear modern statues of former Florentines. The Hall is the very successful work of Bernardo Tasso: the bronze wild boar is a magnificent imitation of the antique wild boar of Tacca in the Uffizi Gallery.

261. Loggias.

Buildings of a peculiar kind, for which the Loggia dei Lanzi in Florence, mentioned in Art. 5 was a beginning, are the open vaulted loggias, that are usual in the 15 th century; in them assembled corporations, or certain families were accustomed to assemble on festal occasions, or to wait there.

The great model, the Loggia dei Lanzi, which in Gothic forms already shows the spirit of the coming Renaissance, was originally intended as the Loggia dei Signori as a stage for festal performances before the people, and it only later became a waiting place for the German mercenaries enlisted by the Grand Duke Cosimo I. The building was decided on in 1356 after the designs of Orcagna, but it was only erected in 1376, when Benci di Cione and Simone di Francesco Talenti are mentioned as executing it. Florence possessed in 1478 more than 20 other such loggias, here family loggias.

In Siena was built after the Loggia dei Lanzi in 1417 the

Loggia on the Casino dei Nobili, the seat of the trade court, but only built with a single arch and still half Gothic in its lower parts, the Loggia dei Papa, but intended for the Piccolomini family, according to the dedicatory inscription. This appears as a vaulted arched portico on Corinthian columns with coarse archivolt members, segmental transverse arches, a plain and tasteless superstructure above the arcade with a half effaced dedicatory inscription in a single line, being a work of Antonio Federigni.[220]

Note 220. A drawing of the Loggia dei Papa is to be found in von Geymüller, Plate 2. -- In Müntz, E. La Renaissance en France et en Italie (Paris, 1885), p. 395, the Loggia on the Casino de'Nobili is represented as the Loggia del Papa and as built by A. Federighi, a rather strong alternation with the actual Loggia of the Pope!

Then there may further be mentioned, even if not quite belonging here, the Loggia dal Grano built by Giulio Parigi in Florence in 1619, and the Loggia di San Paolo, recalling the
372 works of Brunellesco, on the Place S. Maria Novella,[221] with its geometrical sgraffito designs and terra cotta medallions, its superstructure and the strongly projecting cornice with rafters; then in Monte S. Sevino the Loggia del Mercato built by Antonio da Sangallo, a portico of five arches with architrave blocks over the Corinthian capitals, a main cornice with dentils, and the attic with oblong windows rounded at the sides and above the latter.[222]

Note 221. See von Geymüller, Plate 21.

Note 222. See the same, Plate 18 a.

Chapter 23. Government Workshops, Docks, Storehouses, Arsenals, and Inns.

262. Government Workshops, etc. Arsenals.

For the production of war material, there were already in the 13 th century special workshops founded, which were all indeed buildings more or less for utility alone, which the Renaissance period did not lack. Strong and solid buildings were necessary for the preservation of materials, just as already so considered in ancient times.[223]

Note 223. See Part II, Vol. 1, 2 nd edition, Figs. 97, 123, of this Handbook.

Designs, that may give us data concerning the solution of such problems in the period of the Renaissance, which have not ceased from 1104 until the present day, and which were continually enlarged, must be those in Venice, especially from the 14 th to the 19 th century. The workshops and administration buildings, furnished with towers and battlemented walls, held 16,000 workmen during the best period of the Renaissance.

The walls and towers rise in dark red brickwork trimmed with
375 white limestone' to the area enclosed by them leads the Early Renaissance portal, built of white marble and crowned by the arms of the Republic (1460), before which is arranged a small square enclosed by iron grilles and decorated by marble statues (Fig. 352). The four famous lions, which were brought from Piraeus in 1687, are placed on the right and left of the portal as mighty trophies of the republic, they likewise recall the fatal destruction[224] of the Parthenon, the greatest work of Grecian architecture.

Note 224. It should not be forgotten here, that the second half of the 17 th century was fatal to three of the most important monuments of all ages; to the ***Pantheon*** *by robbery and the addition of the so-called "ears" of Bernini ("What the Barbarians did not do, that did the Barbareni"), to the Parthenon, which a bomb from an Oldenburg battery blew into the air, and to the Castle of Heidelberg, whose fortifications and roofs were destroyed by the French under Melac, the chief representatives of Grecian, of Roman, and of German-Italian art, children of the same mother!,*

263. Inns and Places of Amusement.

In reference to the inns and places of amusement, we can only refer to the evidence from the writers given by Burckhardt, as we are unable to add anything tangible thereto. Pope Nicholas V (1447-1455) erected at the Baths of Viterbo baths of princely equipment, great beauty and convenience. Different inns and lodging houses have received enthusiastic mention: the most beautiful and largest Inn (Osteria) before the Gate Porta San Gallo at Florence, for the festivals of artisans, was destroyed in the war of 1529.

Buildings for the purpose of public amusements were chiefly temporary structures, as at this time.

374 Chapter 24. Public Fountains.

264. Public Fountains.

Scarcely any other country of Europe provides such an abundance of good drinking,water as Italy, which civilized mankind of the ancient world already utilized for its uses, and no city of the world had such quantities of likewise good water as a luxury, as did eternal Rome. The old imperial city already pleased itself in the arrangement of water-works and monumental fountains of every kind (Meta sudans etc.); but the Rome of the Popes is scarcely inferior in this respect. No public place, no villa, no court, and no little garden are to be found in and around Rome without the liquid element in more or less artistic forms. And where nature did not refuse it, (for example, in Venice, where only cistern water may be had and public fountains are wanting; but instead are to be noted beautifully treated openings to cisterns), no city or village remains behind, and especially none of those costly country seats, which without the animation of the spouting water, the basins and cascades, would lack their most attractive charm.

265. Isolated Fountains.

Fountains are almost everywhere art works of high rank, and they are either constructed as isolated fountains with one larger collecting basin, or with several of these placed one above another, conceived as purely architectural works and accordingly ornamented, or the structure is elevated to a higher plane by the aid of figure decorations. The figures of allegoric forms of men, women, youths and children, of marine animals of frequently imaginative species and shapes (dragons, sea-horese, dolphins, and the like), consisting of tritons, nymphs, mermaids with the bodies of fishes, then either appear as merely accessory to the architecture, or these form the chief part of the work, and the architecture merely supplies the enclosing framework. Bronze, marble, granite and other ginds of stone, all the materials either separately harmonizing or combined together, of which the fountains are composed.

375 As perfectly beautiful examples with purely architectural treatment may be taken the two fountains 46 ft. high on the Place of S. Peter in Rome (Fig. 353) with the finely contrived arrangement of the water, one of which was designed by Maderna. The "scaly mushroom" on which the falling masses of the water first strike, guides them to the basin, which does not project much further and rests on a boldly constructed support, the water from which and that falling from the lofty jets are received by a great collecting basin, which with its strong enclosure rises above the adjoining pavement of the streets. The great Place with its mighty architecture here tolerates no solution of the problem of a fountain other than by entirely architectural means.

A smaller Place, like the Place of the Signoria in Florence, may be suited by other means; the aid of sculpture must be accepted, and the designer of the Ammanati Fountain there, named after himself, did this so thoroughly, that the participation of architecture was refused. Other conditions require different modes of expression; the Renaissance masters understood how to always satisfy themselves with success and skill by means of this principle!

, The great marble basin is raised a little above the street pavement, as on the Place of S. Peter, and it forms the only important architectural portion; from its centre rises the great white marble Neptune (il biancone) on a chariot drawn
376 by sea-horses, while there are arranged on the margin of the basin four bronze sea-deities, each with two tritons. (The School of Giovanni da Bologna, 1575). But the arrangement of the water is rather clumsy in comparison to the Roman, being chiefly, though not wholly, with a view to the preservation of the marble work.

A still more extensive part is played by the figure element in the great fountain designs in Messina and Palermo, entirely constructed of white marble, that appear on the Place near the Cathedral in the city first mentioned and in the latter on the not large Place before Palace Senator. Montorsoli was the artist of the Fountain in Messina, 26.2 ft. in height, (1547-51); two Florentines, Camilliani and Vagherino (1550)

created that in Palermo, which was originally intended for the garden of a villa.(Figs. 354, 355).

Modest in comparison with these masses of figures, but charming in effect, the so-called Tartaruge (Tortoise) Fountain in Rome (Fig. 356), rather obscured by its erection on a small Place, is a work of Taddeo Landini.(1585). Four naked youths of bronze each raise a tortoise over the margin of a basin supported by a baluster, standing on the heads of dolphins; these emit jets of water into shells placed before them.

Another great composition, though too small for the magnitude of the Place, Gregory XIII had erected from the drawings of Giacomo della Porta; it consists of two concentric basins with four water-spouting tritons, masks, and a fifth colossal triton, who rides on a spouting dolphin and holds it by the tail. Of better effect on the same Place and beside it is the more picturesquely conceived Obelisk Fountain, that Innocent X had Bernini construct in red granite. The obelisk stands on a grotto-shaped block, on whose projections sit 4 colossal figures (Ganges, Danube, Nile, and La Plata). The "Nile" covers its head, so that it may not forever look on the facade of the Church S. Agnese, built by his rival Borromini. (?). An artist's joke and an artist's revenge! But a composition in general skilful and compact.

More simply than on Place Navona has Bernini solved his problem at the Triton Fountain, where four dolphins support a shell, from which a blowing triton rises, -- an original work of the imagination, but designed in a more artistic than monumental manner.(Letarouilly, Vol. 3, Pl. 278).

The Fountain of Neptune in Bologna may be designated as one of the most effective works in this domain, a splendid effort of the Late Renaissance, in which architecture and sculpture contend for victory.(Fig. 357); the former is ascribed to Tommasi Lancrati of Palermo, the bronze Neptune 8.2 ft. high and the cupids to Giovanni da Bologna.(1564-66).

To give an estimate of all the small and great works of note would lead too far here, especially if there be included the fountains in the grounds of villas, for example in the Boboli Gardens in Florence, in Poggio a Cajano, in Petraja near Flor-

Florence, in Poggio a Cajano, in Petraja near Florence, in Villa Borghese in Rome, in Naples and in many other places, the fountains in monastery courts and gardens, as well as draw-wells, like that between the court and garden of the Church of Jesuits at Rome, in the courts of the Monastery of Monte Cassino, of S. Spirito at Rome, and in a hundred other places.

But two of the smaller designs for fountains should yet be considered, the pretty arrangements beneath the staircase in the passage to the court in Palace Vecchio (Fig. 358) at Florence and near the stairway to the Capitol in Rome, but which no longer exists in the form drawn by me in 1866 (Fig. 359). A later period condemned the two Egyptian lions to inactivity and took away from them the water vases.

266. Architectural Wall-Fountains.

Instead of detached fountains, there occur great architectural ornamental works attached to the walls of houses, treated in the manner of the antique triumphal arches. The entire architectural display of these is there repeated on a great scale; it is even enriched by developing the central and side openings into niches with full length figures, as rather awkwardly shown in Aqua Felice on Place Termini, built in 1587 by Domenico Fontana under Sixtus V, and much more beautifully in the formerly praised Fountain Trevi (Fig. 360). The grand
320 ornamental structure stands on an artificially cut travertine rock, over which the waters fall in small streams into the great and low collecting basin, a view in bright moonlit summer nights, that leaves an indelible impression and an enchanting memory!

Conceived as an open loggia is the allied architectural structure of Acqua Paola, which supplies the greatest quantity of water, and which was erected in 1612 by Giovanni Fontana under Paul V. Above the opening for the stream of water nearly 92 ft. wide, that pours into the collecting basin, rises a loggia of three arches between two low end pavilions, and which is crowned by a great attic story decorated by hermes figures, and which supports a great inscription tablet with added shield of arms. The general plan is given in Fig. 361.

Chapter 25. Monuments.

267. Equestrian Monuments.

The erection of public monuments in the form of pedestrian and equestrian statues, executed in hard stone or metal, was employed even to excess by antiquity and especially by the late Roman imperial period. The custom was revived in the Cinquecento, and it was the great master Donatello, who since the antique period in Italy erected the first colossal equestrian statue in cast bronze in honor of the commander of the armies of the republic of Venice, Gattemelata, in Padua (1438-1441). The bronze casting was completed in 1453 and stands on a simple stone pedestal.

The same republic of Venice had a second monument constructed a few years later to honor its general Bartolomeo Colleoni (d.1475), which Andrea Verrochio (d.1488) designed, and it was cast after his death by Alessandro Leopardi, who likewise designed the high marble pedestal (1490-95). Burckhardt designates it as the grandest equestrian statue in the world; "horse and rider are never elsewhere so conceived at one inspiration, so individualized, and yet so strongly combined," as here executed.(Fig. 362). And the judgement given in 1860 is still correct in the year 1902, at least for me, in spite of the enormous production of equestrian statues. According to the precedents in the antique period, the statue was formerly entirely gilded, vestiges of which may still be seen on the belly of the horse and on sheltered places on the armor.
38/ Was its effect once more beautiful with the gleam of gold? The question may be differently answered according to the taste of the time. Whether Verrochio would have left the pedestal in the rather art-industrial treatment of Leopardi must be doubted. That it is not placed in the centre of the Place, but is moved back near the buildings surrounding it, shows superiority and good taste.

The excessively elevated position of the rider must be criticized, and Michelangelo, who had charge of the placing of the antique equestrian statue of Marcus Aurelius, found the proper height (Fig. 363) by his more highly developed artist-

artistic feeling. Both arrangements challenge comparison, in which the great Florentine must be deemed right. The two rather tame equestrian statues of Cosimo I and of Ferdinand I de Medici on Place della Signoria and Place S. Annunziata in Florence by Giovanni da Bologna, on low marble pedestals with bronze shields, are not in a comparison with the previously mentioned monuments in Padua, Venice and Rome.

268. Statues; Isolated Figures.

The sketch design (now in the Museum Louvre) of Mantegna for a statue of Virgil on a low pedestal decorated by two cupids, may perhaps be the earliest proposal for an isolated
382 figure in the Renaissance period. As a seated figure should be mentioned the Monument of Giovanni delle Bande Nera (d. 1526), sculptured in white marble, on the Place S. Lorenzo in Florence, executed by Baccio Bandinelli (Fig. 364), on a broad and richly designed marble pedestal, the architecture imitating that of Leopardi on the Colleoni monument in Venice. The representations of figures on the bases of the monuments mentioned are limited to reliefs; they express a more important addition to the interesting marble statue of the Grand Duke Ferdinand I in Leghorn, where 4 chained Moors in cast bronze are added to the pedestal as a most expressive sculpture decoration of the substructure, thus producing closer relations between it and the statue. The latter is a work of Giovanni dell' Opera, which is far excelled by the 4 Turkish slaves of Pietro Tacca.(Fig. 365).

Everywhere that preference is given to a monumental simplicity in the treatment of the pedestal over a development more like the art industries, the problem is solved in a higher artistic way, and it has turned out more permanently beautiful.

269. Antique Obelisks as Ornaments of a Place.

The Roman popes busied themselves with other monumental decorations of a Place by again erecting the ancient Egyptian obelisks.

The Place S. Pietro, the Places near the Lateran and S. Maria Maggiore, have been supplied with them; on Place del Popolo and on Place Navona rise into the air these memorials of the

victories of ancient Rome over Egypt, now emblems of the conquest of heathendom by Christianity, crowned by bronze crosses! The largest of them is placed before the Lateran, came from Egyptian Thebes, and was once erected in the Circus Maximus. Made of red granite and 106 ft. high, it is indeed the greatest monolith or building stone in the world. It lay there broken in three pieces, and besides erecting it again, it had also to be joined together in one piece. Domenico Fontana, who so happily completed the erection of an obelisk on Place S. Pietro (see Figs. 41, 42), was likewise entrusted with this purely structural problem, which he solved with similar skill and good fortune in August, 1588. The obelisk is 9.55 ft. square at
383 base and 5.95 ft. at top, and in accordance with these dimensions the foundations were made 12.1 ft. wide and 27.8 ft. deep, entirely constructed of courses of travertine ashlars. The three pieces were in a skilful manner joined together by double dovetail dowells of the same material. The external surfaces were first accurately fitted together, then the cross-shaped grooves for the dowells were cut, and these, each in 4 pieces, were inserted and set with lead.(Fig. 367). The total height of the work from the ground to the apex amounts to 150 ft. and its weight is 540.58 tons.

270. Flag Masts as Decorations of a Place.

Masts for flags may finally be mentioned as ornaments for a Place, where they have received an artistic form, as is the case on Place S. Marco in Venice. Modelled by Alessandro Leopardi (1505), the wooden masts, painted red, rise from richly decorated bronze pedestals with their waving streamers and thus form a perfected art-work.(Fig. 368).

Chapter 26. City Gates and Bridges.

"Smilingly the gate decoys the savage into the law;
Joyfully it passes the citizen out into free nature."
Schiller.

271. City Gates.

These words of Schiller cannot be termed exactly appropriate to mediaeval gateways; for these occur as parts of fortifications of the city in bold and lofty forms, as gloomy and fear-
in

384 inspiring towers. Nowise inviting nor attractive, -- threatenting destruction to whoever approaches them with hostile purpose. The external form of the gate, or better of the gateway tower, changed with the introduction of muskets and of heavier ordnance; the tower is omitted, the lofty portions disappear, and the gateway of the Renaissance appears to us as a widely extended building mass; adorned by pilasters and columns, it "smilingly invites within."

385 With this principle accords the Gate of S. Pietro in Perugia, built (1473) by Agostino d'Antonio di Duccio, which has unfortunately remained unfinished in its upper parts.(Fig. 369). With the same low proportions, the famous fortification engineer Michele Sanmicheli has treated his city and fortress gates in North Italy and Dalmatia, as shown by the plan and section of the Gate Nuova in Verona in Figs. 370 and 371, and as the beautiful Gate at Zara exhibits.(Fig. 372). Not easily could such a characteristic form and treatment of details of a structure for so stern a purpose, than is the case at the so-called Gate Stuppa in Verona and at the Gate in Zara. The capability of the gateway structure for subdivision externally is somewhat reduced, as for antique gates; yet the interior and the plan of Gate Nuova advise us differently and show that we have not to do with a mere piece of decoration.

Serlio likewise takes the same course in his designs for gates for a fortified city (Fig. 373) by assuming a rusticated order for the external side; but he does not employ it, when he adds a bastion for cannon above the main cornice.

The following examples in Rome are to be added, the Gate del Popolo (by Vignola in 1561, the internal facade built by Bernini in 1655, but enlarged in 1878), the Gate Pia (begun in 1564 after Michelangelo's capricious plans), as well as the Gate di S. Spirito[228] commenced by Antonio da Sangallo the Younger, etc.

Note 228. See Letarouilly, p. 181 of text.

386 An innovation is shown by Gate Nuova in Palermo, built under Charles V by Gasparo Quercia (1584), whose substructure is like a Roman triumphal arch; above this is an intermediate story with medallions, over which is arranged a loggia in 5

arches with a terrace, above which rises . high colored and glazed tile roof, that supports a lantern (Fig. 374). The upper part was destroyed by lightning, but it was entirely rebuilt in 1688.

272. Triumphal Gates and Arches.

Of gates of the most splendid style extending between existing ancient towers, there may be mentioned:-- the Triumphal Gate of Alfonso I of Arragon (Fig. 375) in the Castle Nuovo at Naples, built in 1283, erected in the year 1442 in honor of his entrance into the city, a work of the Milanese architect Pietro da Martino. Also in the same place, the Gate Capuana built some decades later by Giulio da Majano (1484); the lat-
387 ter being a tower with a high frieze and higher attic story,
388 "perhaps the most beautiful of Renaissance towers;" It was restored in 1535 and adorned on the exterior by reliefs by Giovanni da Nola.

As a detached building entirely of the later period and in the sense of the antique triumphal arch, there may also be mentioned the Gate Triumfale in Florence, built in 1745 by Giadot.

273. Bridges.

"Bridges of absolute artistic importance were first created by the period of 1540-84.[229]

Note 229. See Burckhardt, J. Geschichte der Renaissance in Italien. p. 209. Stuttgart. 1878.

Although antique art had previously labored in this matter, executing the magnificent Bridge of Augustus in Rimini and others, solutions in the purely classic sense, such as Palladio has left to us, had scarcely appeared. His best one is given in the Design for a Bridge with three arches, with portals and shops, reproduced from his own drawings in Figs. 376, 377. He accompanies it[230] with the following words:-- "According to my opinion, the design for this bridge is very beautiful. It is intended for one of the most prominent cities of Italy; it must stand in the middle of the city, where the river is very wide, three passages must extend over it, which are occupied by little shops and much traffic." In justification of his design, he calls up the evidence of the ancients by saying that the Bridge Elis in Rome was covered by loggias,

389 furnished with a bronze balustrade and decorated by statues and other oranments. Covered bridges were also required in the 15 th century by Alberti, who at the command of Nicholas V likewise constructed a roof over the Bridge of S. Angelo at Rome.

Note 230. In his work on Architecture, Book. III, Chapter 13, p. 25.

In the gallery of the Palee in Parma is a painting (No. 283) by Faustino Mosetto (17 th century), which gives an "ideal reconstruction of the Castle S. Angelo and of its Bridge,", Showing the five-arched bridge with a portico crowned at the centre by a low dome, a solution in its way beautiful and interesting, as perhaps Palladio himself may have thought. Another painting (No. 284) by Canaletto gives Palace Basilica in Vicenza and on the right of it the Bridge di Rialto, according to the design reproduced in Fig. 376, designated as "Projetto riunto."

As a bridge with shops, the Bridge Rialto in Venice (Rivo alto, 1588-92) was built by Antonio da Ponte in place of an old wooden bridge, -- a spiritless work in comparison with the design of Palladio, which we may consider as made for Venice according to Canaletto's painting. It is 158 ft. long, 72.2 ft. wide, and it contains a single arch of 88.7 ft. span with 24.6 ft. rise.

The Bridge of Sighs (Sospiri) was built by Antonio Contino between 1595 and 1605, which connects the Prison with Palace Doge and is executed as a covered marble bridge with good treatment of the architectural details.

Freeing himself from the antique, Ammanati built the Bridge della Trinita over the Arno in Florence, a work of high value in engineering and in architecture. "The forms of the arches are fitted to the rise towards the middle with the most unrestricted genius," and with the most refined feeling for lines, the softer forms of the oval are chosen for the arch instead of the hard segmental arch.

390 Chapter 27. Cemeteries.

391 274. Cemeteries.

Cemeteries are not specified as special public buildings, from the custom of utilizing churches, cloisters, and abbey courts as burial places. All larger designs in Italy, which we today wonder at, and which are executed as community buildings in grand style, belong to the modern period. Thus the beautiful Cemetery in Naples was first opened in 1836, that in Milan by Macciachini in 1866, another in Milan in 1895, that planned in Genoa by Refasco in 1867, and that in Rome (Campo Verano) in 1837. The Cemeteries in Messina and in Verona are likewise of modern and very recent date, but that in Palermo (Campo S. Orsola) was already built in 1782, that in Bologna in the Certosa, built in 1335, has since 1801 become a common cemetery. The Cemetery in Ferrara is arranged at the earlier Carthusian Monastery (built 1498-1553), and the Republic of Venice had built its Cemetery on the Island of Tombs, which bears the oldest Renaissance Church of Venice, S. Micchele, built by Moro Lombardi.(1466).

A separate Cemetery is added to the Hospital S. Spirito in Rome, whose plan is shown by Fig. 378. It directly adjoins the buildings of the Hospital and it receives only those dying therein. The graves are regularly and uniformly arranged, and the external walls are of simple architecture, decorated by paintings. The mortuary chapel belonging to it is a small structure. For this design executed by the architect Fuga, the architect has also planned the mode of burial; the bodies are thrown into pits covered by a stone each, where they are covered with unslaked lime, which consumes them.

392 Chapter 28. Furnishing State and Living Rooms with minor Art Works.

275. Decorative Equipment.

The ornamental equipment of state and living rooms, so far as it concerns the construction of floors, walls, doors and windows, has already been touched upon in Chapters 11 and 12, and additions thereto have been made in Chapter 14. Representations of the general effect of the separate state apartments have been given in the illustrations of a hall in Palace Doge (Fig. 301) and of the hall in Villa Albono near Pesaro (Fig.

184) among others, in which is shown the position of the furniture. There accordingly only remains the mention of certain articles of use and of luxury and their execution, which strictly speaking belong to the limitless and nevey completely surveyed domain of art industry in the time of the great Renaissance movement in Italy, and they therefore only come into consideration as such.

276. Furniture.

As in architecture proper, the Renaissance announced itself in furniture, or it may generally be said to have obtained admission into all minor arts already in the 12 th century. It was not limited to the production of purely useful objects; sculpture and painting must unite in order to make art works of them.

And thus do we find it until the 15 th century with a chief example of arrangement, -- the box-seat,-- the panles painted with Biblical and historical pictures, their frames carved and gilded, a gay show-piece, placed in the room for enjoyment of the coloring.(Compare examples in Museum dell' Castello at Milan, Palace Bargello at Florence, and at other places). In the 14 th century, intarsias, i.e., inlaid work supplanted painting, at first only using geometrical black and white patterns, on account of the limited choice of kinds of woods, here and there having the help of ivory; at the beginning of the 15 th century, there were added to the geometrical ornaments freely treated plant scrolls, palm-leaf bands, and the like, with representations of architectural interiors, historical events and landscapes, in which artificially stained woods were employed. In the magnificent intarsias of S. Domenico in Bologna, recourse is had to inlays of metal in addition to colored woods, to which is added the greatest richness of wood-carving.

Skilful subdivision of surfaces and beautiful surface decoration are the leading ideas upon which depends the development of the furniture of this period, and which were only too soon abandoned, to give place to an over rich and strongly treated relief (Figs. 379, 380), which men hit upon and retained, and which reached at last its unsound climax at the

limit by the addition of columns, antique entablatures, niches, arcades, and balustrades.

The still movable cushions and pillows on mediaeval and Renaissance furniture were fixed in place in later times for reasons of convenience, producing upholstered furniture. The upholstered chair then until the 17 th century shows a simple,
394 though rather stiff form with vertical gracefully turned legs, a back somewhat curved, and simple velvet upholstery fastened with gilt pins, with gold embroidery and tassels as a special characteristic. It was succeeded by the Barocco carved chair, and this by that entirely covered by fabrics over a simple wooden frame.

Furniture of the noble metals, entirely covered with repoussee silver, especially referring to tables and mirrors, was the fashion in Venice at the end of the 17 th century, to which is allied in France the furniture of metal and tortoiseshell, the so-called Boule furniture. A chair entirely carved in wood is represented in Fig. 381, and Fig. 382 gives a mirror frame of the same material, a Florentine work of the 16 th century. The period of Louis XV made furniture independent of the principles of architecture.

Besides the natural color of the wood, certain parts were further enriched by gilding, followed by the complete gilding
395 of the wood-work. The wood-work was likewise covered by white, greenish, or yellowish varnish colors with the addition of gilding. For the chairs were employed the most costly silks and velvets, as well as fabrics woven in various colors and covered by drawings of figures, or by naturalistic flower scrolls.

An especially rich artistic treatment was enjoyed by the tops of tables, which assumed the most varied forms. They were made of simple and smooth woods, with intarsias, of precious kinds of marble, of ebony with ivory inlays, decorated by hard stone or dedicate mosaics, with inset precious stones, and in the earlier period these tops in Florence and Venice were not supported by "legs", but by richly carved wooden blocks, succeeded later by more elegant and frequently capricious forms as supports.

Fig. 383 shows an examble of a more architecturally treated

paneling of the wall with hermes-consoles and niches with figures, in which the good old basal idea for the treatment of surfaces is entirely abandoned; for this must follow in furniture the change in the execution of the details.

The same result as for box-seats and chairs likewise appears for beds. The old wooden high canopied bed supported by columns gives place to that entirely covered with cloth, a very beautiful example of which, dating from the 17 th century, is still exhibited in Palace Mansi at Lucca.

A photograph of this by Alinari in Florence has become known.

277. Majolicas.

Of higher artistic individuality, both as objects of luxury and of use, are the majolica vessels, which were produced in great numbers and are to be found in all the museums of the known world, the glazed pottery of the 16 th century, which was chiefly made at Castel Durante in the Duchy of Urbino, where an entire school therefore arose for it. "It forms the transition from the sculptured ornamentation to the painted." The colors employed for it are those of the Robbias:-- yellow, green, blue, and violet, on a light or white ground, making the grotesque ornament more artistically valuable than figure or landscape representations. In Figs. 384 to 386 are given three such pieces from Museum Bargello in Florence, which may be styled both beautiful and characteristic.

But this industry did not stop with mugs, pots and bowls; plates, dishes, and all possible useful articles were made for the table and kitchen. A beautiful collection of these is to be found in the dispensary of the Church in Loretto and in other places.

The simply magnificent table ware of Cardinal Alexander Farnese, which the Museum Nazionale in Naples preserves, -- blue with painted gold ornaments, -- should not be forgotten here. Burckhardt's judgement of this may be recalled:-- "These majolicas are not even manufactures, but are handiwork, from the period of the most extended appreciation of form; in every dish still lives a spark of personal labor and endeavor." Herein lies the mystery, why these things have remained so lovely and valuable.

278. Glass.

Glass in the form of mirrors, borders, chandeliers, drinking vessels for daily use and for display, artistic dishes, cast vessels, etc., is mostly a product of the highly developed Venetian art industry (Fig. 392; Murano chandelier from Palace Vendramin in Venice, as well as Figs. 389, 391; glass objects in Museum Bargello). They may serve to recall those well known art products, that are so finely designed, and thus were correspondingly once made, sometimes of white, sometimes of colored glass, or even of both kinds combined together, and which are still fabricated with varying taste.

Articles of luxury, vessels and ornaments of the 16 th century almost always bear the signature of Benvenuto Cellini.((1500-72). Magnificent pieces of this kind are found in the collection of silver of Palace Pitti in Florence, the best being in the cabinet of gems in the Uffizi there, and an abundance in the art museums of all the larger cities of Italy.

The motive is generally a precious mineral (agate, jasper, lapis-lazuli, etc..), transformed into a vessel in some capricious form, and which for this purpose has been furnished with a foot, handle, and cover. In the golden parts alternate polished surfaces, skilfully wrought portions, enameled parts, and those set with precious stones and pearls (Fig. 393; pitcher from Museum Imperial in Vienna, and Fig. 529; a flask of lapis-lazuli in the cabinet of gems at Florence).

Masks, nymphs, dragons, heads of animals, dolphins, and snakes, are introduced into the domain of ornament in the happiest manner, wherein with refined feeling for the combination of colors, the right one is always found.

Works entirely made of the noble metals, frequently set with enamels and precious stones, in the form of cups and beakers, wrought in silver and gilded plates (though not verified as Italian work) is again found in Florence in the places mentioned.

280. Works in Ivory, etc.

A special branch of this art in vessels consists of works in rock-crystal, carved pieces with polished ornaments.

The so-called "Farnese Coffer" of Joannes de Bernardi in

Naples exhibits the most splendid polished crystal parts, whose effect is somewhat injured by the overrich metal framework.(Fig. 394).

Another branch is further formed by the works in ivory, which occur sometimes as handles of table knives, sometimes as goblets and bowls, whose external surfaces are covered and executed with rich figure compositions in low and high relief.

399 Silver implements for eating occur in the Library of the Cathedral of Siena, whose development rests on a sounder basis than that of those of ivory. The latter went out of use early, catch dirt easily by their strong reliefs and are also inconvenient in the hand. The former exhibit smooth handles with niello ornament on their surfaces in simple lines on a dark blue ground; only the end of the handle has a knob in relief, which is gilded, like the end next the blade.(Fig. 387). Attention is here paid to the use, and every unsuitable ornamental form is avoided, an example for imitation by us, later people.

400. 281. Rugs, Handiwork, etc.

Costly rugs and articles of handiwork, statuettes, busts in marble and metal, also artistically wrought gems, family paintings and pictures in richly carved, colored and gilded frames, (Palace Pitti or Palace Uffizi in Florence), complete the decoration of apartments and by their genuineness heighten the artistic tone in those living rooms, in which those things inherited from their ancestors retained their rights, on the principle that the good from all times always harmonizes with the good, even without the much esteemed unity of style, which may become wearisome under some circumstances.

401.

D. ECCLESIASTICAL BUILDINGS.

Chapter 29. General.

282. Survey.

For the estimation of the churches of the Renaissance, it is still more necessary than for other architectural works to review what preceding ages with their religious conceptions had created in this domain.

In the House of God culminates the architectural creations of all peoples. The highest endeavor and ability in monumental art are expressed therein. Greeks and Romans, Italians and Germans, apply themselves to the same endeavors to provide for their highest being a place, thus of an ideal kind, such as fancy can alone devise. Some give to it a home, wherein it dwells in quiet and concealment, where it receives only the visits of the chosen ones and accepts offerings and gifts; others make the abode a gathering place, where the believers together communicate with the deity, present in the spirit.

This is the characteristic difference between the temples of the pagan gods and those of the Christian Deity. The former were not intended to receive a believing multitude in a devout frame of mind for a common sacrifice and prayer; they were only the sacred dwellings of the deity, that men worshipped.

The originally impersonal Deity in time becomes personal, his perceptible image requiring a shelter affording protection like that for mortals on the earth. The Deity assumes the form of man; the same virtues and burdens are imputed to him' hate and love, magnanimity and revenge are peculiar to him. He envies, pursues, and punishes. The image of the Deity depends upon the state of the art of a people; clumsy and confused in the period of the beginnings of the formative arts, perfected and inspired in the best period. Severe and inflexible shapes enjoined by the priesthood are opposed to individual and living representations. The most common and ordinary to the most costly and richest materials were employed

in producing the image of the Deity; wood, plastic clay, the most diverse kinds of stone, bronze, silver, gold, and ivory.

The same course of progress as that of the image of the Deity was passed over by the House of the Deity. First the Hut built of wood, the woodwork covered by paneling, terra cotta, and metal plates, then the construction in stone and wood, lastly the Temple executed entirely in unchangeable materials, intended for time and eternity. A canopy, four columns and a roof above them, or four walls and a roof with a projecting
402 portico on columns and extending on one, two, or all four sides, were indeed the oldest forms, which may likewise be recognized again in all later ones.

283. Greeks.

In the best period of Grecian art, the House of Deity appears on a substructure of several steps, presented to the Deity as a consecrated gift, represented as a house adorned by columns, clearly and magnificently executed in white Pentelican marble, with the most splendid ornamentation by sculptures. Its interior is either an elongated room divided into three apartments in depth, into vestibule, holy, and holiest place, in which the image of Deity stood, or merely into a front and a rear house by a transverse wall. According to the extent of space is the cell divided into two or three aisles by small colonnades, generally with one above another, which was done more for structural than for esthetic reasons, for these frequently served only for supporting the structure of the roof. The interior received light only and solely through the great doorway extending to the ceiling. According to the position of the sun and the time of year, a mysterious gloom may have prevailed within the splendidly ornamented House of Deity, which may have produced an awestruck impression in believers when presenting their offerings, which was not done in common and therefore not on fixed days.

The interior with its ornamental statues and its sacred gifts, like a museum created by reverence toward Deity, did not affect in a majestic way the masses, but rather the feelings of the individual, which priests and architect indeed already produced. But what must have more strongly impressed

the people was the peculiar placing of the temples in groups together, the creation of the separate sacred precincts! Usually placed near each other in the citadel and on a sloping plateau of rock enclosed by walls, to which stone steps led up, the entrance defended by noble gateways, -- of such a kind and in the highest perfection do we see the group of temples on the Acropolis of Athens!

Detached from the traffic of the city, only with an outlook on the mountains and the sea lie these Houses of Deity within their enclosed precinct, and so are they to be taken; the precinct must be allowed to affect us as an area. About sunset, gray Hymettos in the East is frequently colored a warm violet, Lycabettos is brownish-red, Pentelicos is deep blue and its quarry is red; Acrocorinth glows in reddish mist; the mountains of Megara vanish in gold. The sea with its islands is sometimes dark blue, sometimes green, then milky; the landscape and the leaves of the trees gleam redly above it; the marble ruins of the temples glow as with fire and become of a colossal size. The mental eye restores them with the decoration of their sculptures and thus creates a picture of the noblest kind, in which one may perceive the manifestation of the Deity.

284. Romans.

Roman art takes the same course in part. The Houses of Deity receive a kindred form and arrangement; for they were also not intended to receive a multitude of believers. Of modest materials and dimensions were they built in the period of the kings and the republic (perhaps excepting the Temple of Capitoline Jupiter), a change being only made herein by imperial Rome. The most precious building materials in the world were introduced; the earlier temporary polychromy had to give place to a monumental one. Stones of varied colors were employed; granite columns with metallic ornaments occurred with white
403 marble beams, and which is of most importance, the wooden ceiling of the cell yields place to the stone ceiling of vaulted form!

The art of vaulting attained its climax when a change in the construction of the masonry occurred.

In the Augustan period, the execution with thorough and regu-

regularly cut stones was abandoned, and a wall was built of spalls or small pieces, that was merely faced with ashlars or bricks. A kind of cellular construction was produced with a greater thickness of the wall, consisting of regularly shaped stones on the external faces only, between which a mixture of stone spalls and mortar was filled in courses of moderate he height. On these were laid courses of bond stones, above which was repeated the same kind of masonry. Thus arose a network of solid stone, like the cells of a honeycomb, whose interspaces were filled with concrete, and this method war applied to the construction of massive stone ceilings and vaults. Economy and lightness of ceilings with entire solidity characterize this system of execution.

While for the oblong House of Deity, the tunnel vault retained exclusive sway as the form of the ceiling, there was substituted for it on polygonal and circular plans the cloister vault and the dome.

The circular form of temple, likewise derived indeed from one of the oldest forms of dwellings (Capanna of the Roman shepherds; Urns in form of houses), is only found sporadically among the Greeks, and even in Roman architecture it is not usual; yet the most important structure created by the Roman art of vaulting is here included; the world famous Pantheon in Rome with a span or internal diameter of 142.7 ft. for the vault, which seeks its equal to this day. Built on a circular substructure, with two concentric rings of concrete walls connected by ties and perimtting a division of the interior into eight niches, there rises a dome with a great opening at its apex. The controlling motives on it are of the simplest; on a solid cylinder is a hemisphere open at its vertex, to whose interior leads a massive portico of eight columns.

What is it, that so powerfully enchains the observer, as soon as he enters the bronze and still antique entrance doors? What still produces the overpowering impression, even in its present mutilated condition?-- The magnitude and simplicity of the interior, and especially the unity of the lighting, that as if from a special star falls from one point into the interior and uniformly lights ceiling, wall and pavement! But

But we find another by reflection, that impresses us, which is the magnitude in comparison with other works of architecture. Like a stone world stands the interior before us, within which might be placed the most wonderful works of German,,French and English architecture. With this mighty central building is contrasted in reference to the formal effect the vaulted three-aisled Basilica of Maxentius with its great cross and tunnel vaults, the former of which determine the internal effect.

The exteriors of both buildings are the simplest conceivable; no value, like that of Greek temples, is placed thereon; merely the interior must powerfully and fully affect the observer,
404 and in this lies a transposition of the climax of the architectural problem. Men will nevermore impose by an influencing exterior or produce an impression by grouping similar structures in a precinct; only the interior will be permitted to speak, and this speech will be retained in future times, certainly under changed conditions of civilization.

285. Byzantines.

With the division of the Roman empire, the transfer of the capital of Constantine the Great to Byzantium, and the introduction of Christianity as the state religion, the great problems of architecture were changed back to the East for a time. The Grecian and Roman temples had ceased, and the Christian church came in their places with other requirements.

This was the problem, to create an interior, which on certain days should receive a great multitude of believers; then the chief emphasis must be laid on the internal treatment. The late Roman antiquity afforded for this abundant suggestions and models in the central buildings mentioned and in the basilican designs with several aisles for other public buildings. And therefore there occur beside each other in Early Christian art for the House of God, the elongated basilican plan, the form of the Latin cross with unequal arms, the form of the Greek cross with equal arms, and the central plan; this art moreover understood, with the simplest treatment of the exterior and with the use of architectural details from a dead art, how to create interiors of grand effect. Not easily may man resist the peculiar charm exerted upon him by the basilicas of

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Ravenna and of Rome.

Only one, -- S. Apollinare in Classe, -- in Ravenna will be considered. Whoever at an early hour in the morning fog of the rice fields wanders to the Pineta, the pine woods near Ravenna, sees the picturesquely grouped masses of brickwork suddenly appear out of the fog and enters the Church, will stand in quiet surprise; a peculiar feeling will overcome him in the abandoned House of God, even with the simplicity of the architectural idea therein expressed. A middle aisle 46 ft. wide, two side aisles half as broad, the clearstory walls supported by 24 marble columns, a semicircular apse with mosaic decorations, friezes with medallion portraits on the clearstory walls, covered by a visible trussed roof, formerly painted, -- this is all that is required. The simple dimensions of the interior, the excellent proportions, the not too abundant light poured over the interior, hold us entranced.

If the Basilica was indeed the starting point and so remained in the Western Roman empire, then was it also the central building, which always again busied the intellect. The idea was brought out by the building of S. Sophia in Constantinople, erected under Justinian within 5 years by the Greek architects Anthemius of Tralles and Isidore of Miletus in 537. We see even in the ground plan a combination of the basilica and the central structure: but the latter breaks out victoriously in the dome, which dominates the entire design! Construction is here on a great scale, what had previously only been executed in a spiritless way on a small scale, i.e., the dome is set on piers joined by arches, enclosing a square space. By means of pendentives extending between the arches, the supporting
405 ring is created, on which rises the covering vault in the form of a spherical dome of 104.96 ft. diameter, which is indeed about 32.8 ft. less than that of the Pantheon at Rome, but it is therefore infinitely bolder in conception and execution. It marks a step in the history of the art of vaulting and an advance of the strongest kind.

"I have excelled thee, O Solomon!, was Justinian's greeting to the completed building. No centralized structure in the world has a more harmonious effect than this! The exterior is

plain and simple, executed with the omission of all ornamental details, indeed with reference to the fact, that this Court Church lay within the other buildings of the Palace; but on the interior were lavished the costliest materials, making an impression of size, magnificence, and sublimity! The treatment of the space is overpowering and every forward step presents new views! To this contributes the peculiar lighting by 40 small roundheaded windows in the base of the dome, which admit light into the central space, while other windows in the galleries and apses supply lighting and contrasting lights in the subordinate rooms in a picturesque manner. Even from the threshold of the entrance doorway, the eye comprises the entire interior; the dominating dome is already visible from thence. This possibility for viewing the entire interior at a glance on entering, the very happily conceived details, neither too large nor too small, and the effect of entering light makes the room appear larger than it is, a combination that essentially contributes to the mighty impression.

We visited the interior in the month of Ramadan during the great evening prayers, the rooms being animated by thousands, who repeated their prayers standing or at times prostrated t themselves on the wooden floors, on which the direction towards Mecca is indicated, producing a great and hollow echo in the vaults, while the marble walls and the golden mosaics of the domes and arches reflected the gleams of thousands of small lamps, that bordered the architectural lines up to the dome or were arranged in suspended chandeliers.-- then was the effect of the interior raised to a climax, and every visitor willingly yields to it and recognizes the architectural might of the interior.

286. Middle Ages.

Another advance takes us through the disorders of the migrations of the nations, which cleared away the antique, to mediaeval Romanesque and Gothic architecture. Who would miss the charm of the cathedrals and minsters of this art period or who would too lightly prize it, which enlivened the sweet dreams of our childhood years with organ tones, the clang of bells, and the singing choirs, with their forest of columns and lofty

vaults, with their mysterious lighting, "where even Heaven's dear light entered, dimmed by painted panes." No man, whatever be his faith, can reject the internal effect of these buildings!

But however high the impression of the imagination may be prized, there was impossible a development of the interior, like that realized by antique Roman and Early Christian art in the halls of justice, the halls of the baths, in the Pantheon and in S. Sophia. An endeavor to attain this is indeed to be recognized, but again rather on Italian soil. Spans of 45.92 ft. or but little more were the highest attained by the mediaeval art of vaulting: it did not pass this point or limit; the ancient art surpassed it about three-fold!

The endeavor for spaciousness with the reduction of domical
406 construction made itself felt in the greater style in the Cathedrals of Florence and of Bologna, designed in the Gothic style. While in the North, men were satisfied to take the width of the middle aisle for the dome over the intersection, the Southern racial feeling for spaciousness sought an extension of this over the three aisles (middle and two side aisles), thus producing in a peculiar way with the form of the Latin cross in the plan, the effect of a centralized structure, when viewed externally towards the choir.

How in S. M. del Fiore at Florence the domical structure was conceived in the Gothic style may be learned from various representations: how the same was executed in Bologna is shown to us by the still preserved wooden model in the sacristy of S. Petronio. (Fig. 395). Neither was completed. The substructure was even provided by the Gothic architects. They created four massive piers, two of which are furnished with passages in the width of the side aisles and are connected by pointed arches in the width of the middle aisle. On this basis rose a drum of moderate height with round windows, above which is the octagonal dome as a cloister vault. The structure was carried as far as the drum by the Gothic masters: the dome thereon was the first great structural undertaking of a new and commencing period, which attained the victory with an innovation in form in the domain of architecture, which has now been employed for more than four hundred years.

287. Renaissance.

In the execution of this dome, the first departure from the antique art was the design of a second external dome protecting the internal and space-enclosing one; a second is to be sought in the loading of the apex by a lantern.

However interesting the great structure, however mightily
407 it rises above the exterior and dominates the building, however strongly it appears in a view of the city, just as little does it satisfy in its effect of the interior by the insipidity of the architecture, by the tastelessly arranged lighting, by the yellow tinting, and by the painting of the surfaces of the domical vault, whose scale is only determined after reflection, for example, if from the highest gallery at the beginning of the dome, we allow the eye to rest on the opposite wall or fall on the floor of the mighty cathedral, where men appear like a swarm of ants, or merely measure the figures in the paintings, where the feet of some forms exhibit the remarkable dimensions of 4.92 ft. from toe to heel! A spell as on entering the Pantheon or S. Sophia does not seize on us here, and we are affected only by a comparison of the scales.

Yet 150 years later, a second undertaking of the same art period likewise surpassed the grandest creations of the antique world, of the Eastern and the Western Romans, that of S. Peter in Rome! Originally planned as a centralized building, it was executed in the form of a Latin cross with a dome over the intersection. The dome has a span of 138.4 ft., thus being larger than that in Florence and only 3.28 ft. less than that of the Pantheon, but it is also 39.4 ft. more than that of S. Sophia, resting on four massive piers, which have sides 62.3 ft. long and are connected by the great tunnel vaults. Between these are pendentives, as at S. Sophia: but they are no longer spherical triangles, but are spherical trapezoids, whose form and magnitude are fixed by the form of the piers, i. e., by their internal splaying, by which the projection of the pendentives is lessened. As at S. Sophia, the pendentives and the four arches combine in a basal ring, but which does not form the base of the dome, for upon this first rises further a higher cylinder (drum), admitting light. "I will place

the Pantheon upon columns," said the first master on that building, -- he knew how to do it and to then place the pier construction of the Church S. Sophia beneath it, and he did not say too much!

The great structural innovation, preceded also by experiments on a small slace in the small Byzantine churches, was the shape of the supporting piers, the addition of a cylinder admitting light, and the erection of a double dome with a lantern on a scale previously unknown to architecture. The height from the pavement to the apex of the lantern amounts to 403.44 ft., thus being more than twich that of S. Sophia. If the details of the internal architecture were on a somewhat more modest scale, no building in the world would equal it in proportions, beauty and magnificence of decoration. The light falls too abundantly within the noble and weighty interior, permitting the recognition of the finest details of the ornamentation and of the colored mosaic decorations, all happily harmonized. No mystic gloom thrills through the internal space; everywhere is the clear, warm, Southern sunshine, which illuminates and heightens the splendor of the materials, of the gilding, and of the mosaic pictures. Grandeur and solidity from the epex of the dome down to the pavement, and the feeling of elevation and beauty permeates the observer and reminds him of the vicinity of the Deity! But whoever desires to see the interior still increase in magnitude will await one of the great church festivals. The side windows are draped and admit but little light; only the dome diffuses daylight from above, but
408 not for its entire perimeter, for the windows of the light-admitting drum are veiled with transparent fabric, -- then the dimensions increase into the unexpected. If the wax candles be then lighted on the continuous cornices, illuminating the dome on the right and left of the high altar, which is itself transformed into a sea of light, the two colossal chandeliers supporting over 10,000 candles, then will he be satisfied, who wishes to recall the mystical in the House of God. On such festal days, the exterior is not neglected; it gleams with decoration by lights after darkness comes. The main lines of the building, the ribs of the dome, the cornices of the wide

colonnades gleam with the silver light of small lamps, --, the so-called "silver" illumination"; on the stroke of ten, this changes into the "golden", for by a stroke of magic, large yellowish red lights are inserted between the small white lamps, and on the lantern rises the cross of Christendom, gleaming afar!

Whoever as an earnest man regards the dimensions of S. Peter's externally, will wander over the Janiculum and take his place beneath the evergreen oaks, that rise above the walls of the Villa Pamfili-Dria, and he will look around himself. Like an island lies the group of the buildings of the Vatican before him, from which rises the dome almost in a geometrical elevation, with the most beautiful outlines in the world, which Michelangelo conceived and knew how to fix in a great wooden model, before he closed his eyes. What he conceived, he was unable to behold in the completed work!

As if cast in bronze, S. Peter's stands against the blue sky, rising from the earth gleaming in violet and yellowish-brown; in the distance is the view enclosed by the mighty mountain chain of the Apennines with pointed Soracte and the snow-covered head of Mt. Leonessa, a view of the grandeur , of the earnestness, and of the beauty of a work of man, never again attained, much less ever excelled.

288. Magnitude of Space.

According to the preceding, the Renaissance artists believed themselves compelled to consider magnitude of space in church architecture, and justly so primarily, if they did not abandon the definite purpose of the building and desired to affect the minds of believers by this magnitude. And they succeeded therein like few others, although thereby the exterior fell somewhat behind in many cases.

289. Ecclesiastical Style and Treatment of Forms.

Since the antique knows no ecclesiastical style, just as little has the Renaissance such a one to show. "In the South is the great and the beautiful of itself holy, and true art is noble and pious of itself; for the endeavor for perfection already arouses the soul to meditation, when it approaches God and unites with Him." (Words of Michelangelo; 1549).

As for secular buildings, the expression of form is likewise here a borrowed one, at first misunderstood, later imitated even to dryness from the antique., then degenerate, passing over the same course as in the ancient period, yet not excluding the production of new forms of details already mentioned.

Pointed, segmental, semicircular, and oval arches were employed for spanning openings and as lines of vaults, as well as the horizontal architrave, -- that first mentioned being chiefly on buildings of the transition style and of the Early Renaissance, when the details were still frequently subject to the influence of mediaeval expression of form.

409 The Early Christian designs in Italy must have been derived in the following considerations from Early Christian art, since these were the earliest places in which the adherents of the new religion gathered for a common worship of God. What was taken from them? What was contributed by the Romanesque and the Gothic middle ages?

290. Orientation.

A question more liturgical than architectural is that of the orientation of ecclesiastical structures. Where a free site existed, men adhered to the direction of the longitudinal axis from East to West, transferred from antique temples also in the earliest Christian churches, so that in Rome the altar was generally placed at the Western end, but in Ravenna at the Eastern end; the latter mode of location formed a general rule in the middle ages. Was it likewise followed in the Renaissance? No; it was no longer strictly retained on account of the fixed subdivision of the interior of the city, as well as the arrangement and location of the streets and the open squares. It soon exhibited more exceptions; but in spite of this, sufficient famous examples may be cited for the rule. In Rome is the Church of the Jesuits, in Loreto the pilgrimage Church, in Florence are S. Spirito and S. Annunziata, in Mantua S. Andrea, in Padua S. Giustina and the Carmine, in Venice S. Giorgio Maggiore, S. Salvatore and many others, are orientated. Accurate statistics on orientation have only been prepared concerning the churches of the city

of Rome; but all directions of the compass occur there!

291. Plan of the City; Basilican Design.

The basal scheme, -- the 3-aisled Early Christian basilica, -- to which mediaeval architecture adhered in a qualified sense, continued likewise for the Renaissance. The idea of the ratio of the width of the middle aisle to those of the side aisles and cross section was retained as Romanesque art had fixed it; the arrangement of the distances between supports and of the bays of the vaults were likewise accepted.

The basilican design with its unified internal perspective was especially adapted to characterize the House of God as an elongated structure; it appeared in the plan as a rectangular form with strongly expressed preponderation of the longer sides and by subdivision into an uneven number of aisles (1, 3, or 5) by means of open colonnades, the middle one always remaining widest; the termination was formed by a semicircular apse.

The origin of this architectural conception Leon Battista Alberti first believed must be found in the Roman basilica of justice, to which assumption was later opposed another, according to which the basilican church was to be regarded as a p product of Christian worship and spirit, created in the era of Constantine, to which conception Hübsch in particular adhered. But in the year 1847 first arose a contradiction by Zestermann, when he derived the beginnings of the Christian basilica from antique Roman palace architecture, with the proof, that the Roman patrician's house regularly contained among its parts a hall of special form and appellation; the basilica.

To these theories Dehio opposed a fourth, which will be willingly accepted in general and in detail, on account of his logical and practical deductions. Only in the houses of citizens could the first Christians have assembled, and therefore from the dwelling were the parts of the basilica derived. The tablinum became the seat of the leader, an apse;
410 the alae (wings) became the transepts, in which gathered the deacons and the deaconesses, the atrium became the nave, occupied by believers during divine service. Those assembled in the atrium or in the peristyle surrounded by columns must

have protection from wind and weather, without introducing darkness into the bargain. The floor system for removing rain water could no longer be retained, and the atrium displuwiatum (covered) of Vitruvius occurred in its place, where the introduction of light was done in a truly antiqua way, by the addition of a superstructure with side windows, as was the case in the hypostyle halls of the Egyptians and the Assyrians, and likewise indeed in those of the Greeks during the era of Alexander. The structure above the entablature of the peristyle was developed into the high walls of the main aisle, which were joined by a horizontal wooden ceiling or by the visible (open) trusses of the roof.

Note 231. Compare Dehio & von Bezold. Die Kirchliche Baukunst des Abendlandes. Stuttgart. 1884-1901. p. 63.

These forms now occur:-- the single-aisled design with high side lights, the three-aisled and the five-aisled with high windows at the sides of the middle aisle and windows in the walls of the side aisles. The construction of galleries in the side aisles remains chiefly an oriental arrangement, but it also sometimes occurs in the West; the design of the transepts is to be termed specifically western.

Vestibule (narthex), assembly room (nave), and the room for pri priests (apse), form the elements of the basilica, to which arrangement the early middle ages and the Renaissance remained faithful. Piers and columns alternate in both modes of construction as supports of the clearstory walls.

As columnar basilicas are created the two Churches of S. Lorenzo and S. Spirito, as pier basilicas, the Cathedrals in Udine, Treviso, and Pavia.

The definite narthex went out of use generally toward the end of the first thousand years; if one of these became ruinous, it was no longer rebuilt. The Renaissance resumed the idea again on some buildings and embodied it in an interesting way on the Annunziata in Florence, then on S. M. Maddalena de' Pazzi there, on the Parish Church of S. Lorenzo at Chiavenna at a great scale, where a slender bell-tower rises in the midst of the fore-court; then on S. Maria at Abbiategrosso, and further on S. Sisto in Piacenza, and at other places. This then presents here nothing new in church architecture; it brings in merely an old motive, for which an effect is again but rarely created in a changed

form and a spirited way.

Just as the atrium on an Early Christian basilica was transformed into a simple portico (S. Lorenzo fuora le Mura, S. Giorgio in Velabro at Rome and others; also see Fig. 396), this procedure was also completed in the Renaissance, especially in some splendid examples, as on the Cathedral in Spoleto, connected with the arrangement of two pulpits for preaching, as shown in a classical way in S. M. Navicella at Rome, at S. M. della Grazie in Arezzo, and on S. Annunziata in Florence. A plain portico with three arches extending between two towers was erected on the Incoronata at Lodi; entirely enclosed vestibules, accessible only through a tower, were executed by the Renaissance in a splendid way at the Umilta in Pistoja and more simply at S. Sebastiano in Mantua.

As the most splendid example of the later period should be mentioned a work of Fanzaga (1591-1678), the portico of the
411 Sapienza in Naples (Fig. 396). Space was there lacking for a straight course of the steps to the portal of the elevated Church, on account of which the entrances of the vestibule were placed at the broad ends in a very skilful way, and the steps were carried up therein.[282]

Note 282. Compare Wohl, W. Tagebuch einer Italienische Reise. Stuttgart. p. 229.

But the original design of the atrium shrinks together yet more, if it be limited to the form of a great arch at the entrance portal, already employed by Romanesque art, for which we have examples on churches in Upper Italy and in the strongest manner on the gabled facade of S. Maria at Abbiategrosso. There side walls with detached columns in two stories above each other form the enclosure, which is covered by a massive semicircular tunnel vault and a gable roof above it. This motive of the triumphal arch is strongly inserted into the[283] low arcaded porticos, that extend around the fore-court.

Note 283. For a representation thereof, see Strack, H. Central- und Kuppelbauten der Renaissance in Italien. Berlin. 1882. Plate 26.

412 As soon as the design with several aisles was brought into
413 use, the raised middle aisle became the rule in the parish

church, both in the development in three, as well as in five aisles. In the latter, both side aisles on the right and left of the middle aisle were placed under one roof (compare S. Paolo fuora le Mura in Rome), or these roof surfaces were stepped down according to the clearstory walls. (compare the Gothic Church S. Trinita in Florence).

Churches with but one aisle, such as mediaeval art frequently produced, also continued to exist in the Renaissance by right and were even preferred. Those with two aisles of equal height and width (two-aisled), such as the Gothic created in the Tyrol and in North Germany, have not become known to me in the Italian Renaissance, also those with only a single side aisle, built sometimes in the north, sometimes on the south of the middle aisle, sometimes lower, sometimes of the same width as the **main** aisle. They belong on this side of the Alps
414 chiefly to the begging orders, which for reasons of economy and to provide space for the audience for preaching, placed the pulpit opposite them.

292. Hall Churches.

Towards another innovation created in church architecture by the middle ages, the so-called hall churches, -- equal heights under one roof, -- the Renaissance was generally opposed. Among the few hall churches are to be named; S. M. Annunziata in Camerino in the Mark of Ancona, and the Cathedral in Pienza built by Rossellino, an experiment very unfortunate in every way, that makes use of stilted round arches in the side aisles in order to place the centres[234] of the arches in the middle aisle below the imposts.

Note 234. Published in Geymuller' on Bernardo Rossellino, plate 11; also Laspeyres, plate 49.

The hall church presupposes complete vaulting, which was there employed by the Renaissance, while the basilican design permitted the horizontal wooden ceiling of the middle aisle, as well as vaults over all aisles. In all cases was the side thrust of the vaults to be neutralized, either directly by the insertion of iron or wooden anchors or ties, or by opposing forces in the form of buttresses, stays, or flying buttresses (see Art. 60), or by both methods at the same time, if

one could not entirely trust the construction. Moreover, the Southern people were animated by a greater trust in Providence for a solution of this purely statical problem, and they were generally led by a truer feeling to the basis of what of antiquity was daily before their eyes, so that they likewise studied, observed, and measured. Compare for this purpose the mediaeval structures in Figs. 397, 398, 399, the cross sections of the Churches of S. Denis, of Longpont, and of S. M. Novella in Florence. The last named Church shows the greatest spans of the centre and side aisles with the least thickness of the walls. What masses of masonry were on the contrary employed by the French architects of the same period in comparison with the Italian masters, in order to produce the same stability! By what plain and simple means is the same problem solved in Florence! On which side is here the principle of securing by the use of the
415 least possible materia the greatest stability and strength? According to the examples selected, certainly not on the side of the Northern people!

In their basilican designs, the Italians never placed the attachment of their flying buttresses or piers so high or even extended them up to the roof cornice of the middle aisle; they rise but little above the springing of the vaults on S. Anastasia in Verona, on the Cathedral of Florence, on the Cathedral in Como, at S. Petronio in Bologna, (although on account of the walls between the chapels there, they are increased greatly in depth), and at S. Francesco in Bologna.

In contrast with the middle ages, greater boldness in the use of less material prevails in the Renaissance, together with a more highly developed feeling for spaciousness. But by the latter were likewise animated the Gothic masters of Milan, of the Cathedral of Florence, and of the great Church of S. Petronio in Bologna, where they chose 52.48 ft., 55.7 ft., and 59.09 ft., for the spans of the vaulted middle aisles of their basilicas, while those of 45.92 ft. were never exceeded in Amiens, Strasburg, and Cologne.

293. Transverse Aisle and Transepts.

The transverse aisle of the ancient basilica is recalled in the mediaeval churches of Italy in two prominent examples,

in the plans of S. M. Novella and of S. Croce in Florence, strongly and effectively (Fig. 200)[235] and it was reproduced in his new expression of form by Brunelleschi in S. Lorenzo in Florence; it became transepts in the plan of S. Spirito in Florence, where longitudinal and transverse aisles intersect, and the arms are carried beyond the point of intersection. The Latin cross with three arms of equal length and a longer one is here decidedly expressed.

Note 235. Dehio & von Bezold. (Plate 534 is incorrect in reference to the arrangement of the vaults in the transverse aisle.

294. Altar Space and Chapels.

For the altar space, "the perspective point of direction, the soul and ruler of the entire design,"[237] the semicircular
416 vaulted niche is normal in the ancient basilicas: it had to
417 yield to the rectangular and the polygonal form in the middle ages, but came again in the Renaissance into full honor again, even though the form of the polygonal exterior (dei Servi in Siena) usual in Ravenna and Byzantium continued, as well as the masking by a rectangular exterior, or the regular form both externally and internally rectangular, as executed in the plan of S. Lorenzo. (Fig. 401).

Note 237. See Dehio & von Bezold. p. 95.

But the single altar space no longer sufficed, even in the Early Christian period; men sought to obtain others at the similar ends of the side aisles (compare S. Pietro in Vincolis in Rome, Cathedral in Parenzo), and in the middle ages "the cumulative veneration of the saints" required in each greater church a considerable number of altars (the ancient sketch of S. Gall gives 17 of them), for which room could only be found along the side walls of the church, or by the continuation of the side aisles around the altar apse or choir, from which resulted about the middle of the 12 th century a series of small chapels (chevet choir). From this necessity and not "for the better effect of a procession" must these designs have originated, and they were likewise realized in the Renaissance.

Many of the churches with a single aisle (S. Francesco al Monte in Florence, S. Felicita, Cathedral in Montepulciano,

S. M. dei Servi in Borgo S. Sepulcro, S. Domenico in Recanati, S. Andrea in Mantua, etc.) show the chapels along the longitudinal walls of the aisle, and also those with three aisles (Fig.402; S. M. della Catena in Palermo), also the cathedral in Pavia (Fig. 403), but especially S. Lorenzo in Florence as well as S. Spirito there, where the chaples not only extend along the external walls of the nave, but also those of the transepts and choir (Fig. 404), if they may be so termed.

295. Dome over Intersection.

But the intersection of the transverse and longitudinal aisles leads directly to a special architectural distinction for this point; it is so important that it requires emphasis, which is given in an inefficient way by small domes on S. Lorenzo and S. Spirito, but which had laready been attempted in a grander manner during the middle ages on completely vaulted churches with the ground plan of a Latin cross; on S. M. del Fiore in Florence and S. Petronio in Bologna.

418 The intersection was to be marked here both externally and internally by a great dome, indeed comprising the widths of the three aisles! The idea ripened in the Gothic middle ages in Italy, and it could ripen there alone, where the great domed structures of the ancients gave an invitation to similar undertakings. S. Petronio was not completed, but the design is preserved for us today in the model. One of the grandest churches of the world would have been created by its execution, a dome that would have nearly attained to those of Florence and of Rome by its clear span of 131.2 ft. The eight supports of the dome on the ground plan, two of which were executed as a part of the existing church, appear far more beautifully subdivided and developed than the substructure of the Florentine Cathedral; but whether the chosen sections were ever able to receive the weight of the dome and to hold in equilibrium the play of forces therein, must well be doubted.

The pilgrimage Church of S. Casa of Loreto (Fig. 405) should be mentioned here; for it is and remains from the House outwards a Gothic structure of "astonishing" arrangement of plan and with the like grand ideas; the Latin cross with a dome over the intersection, which is supported by 8 piers and has a

diameter (97.8 ft.) equal to the width of the three aisles. The supports were also made too weak here, or a defect, which which Giuliano da Sangallo (Sept. 1499) later sought to remedy, But which Bramante first thoroughly obviated in 1509.

These designs continued to have great and permanent influence on the Renaissance masters, and the plan of Loreto is without doubt a model for the design of Christofero Rocchi for the Cathedral at Pavia.(Compare the two plans in Figs. 403 and 405, with special reference to the beautiful arrangement in Loreto of the 4 chapels on the diagonals of the transepts.

296. Crypts.

In the time of Constantine, it was in Rome customary to build memorial churches over the tombs of martyrs, when the tomb itself was placed in the closest connection with the altar; i.e., a small subterranean vault was so placed beneath the high alter, that one could look down into it. From this Early Christian "Confessio", combined with its arrangement like a catacomb, originated the late Early Christian and mediaeval-Romanesque crypt, -- the complete subterranean church with altars, which were then arranged beneath the raised choir.

419 When the original burial-place of the martyr was not in question, bones brought from elsewhere were more frequently buried in the church, and men were then satisfied with exhibiting them above ground, and they viewed the sacred bones through a vertical front wall, or they made the altar itself a receptacle for them. "The tomb is omitted from the permanent parts of the church architecture" became in the Gothic period a basal principle, and it was also firmly retained by the Renaissance likewise.

The Protorenaissance exhibited a reminiscence of the crypt design in the Church S. Miniato al Monte near Florence, while it was refused by the Early and Late Renaissance, following the Gothic. The altar table became a sarcophagus for the saint, or where the confessio was provided, the Renaissance cared for beautiful architectural accessories to it, as shown , for example, in the most perfect way in S. M. Maggiore and in S. Pietro in Rome.

297. Towers.

The towers are not original adjuncts to Christian church architecture. They were still unknown to the 6 th and 7 th centuries, and indeed they became first distinctly authentic in Rome and in Ravenna in the 8 th century. They either served to receive staircases to galleries and the attics, or they were built as watch-towers. -- The earliest bells were small and were mostly hung in little towers on the roof. With the introduction of bells that could be heard further, the towers were taken for them.

The opinion that they did not belong with the parts of the church was held in Italy from the earliest period, and they were therefore indeed later placed beside the side of the basilica as detached structures. This position was typical, and it was never lost during all successive phases of architecture in Italy.

While on this side of the Alps, architects and people were enthusiastic for the external and lofty characteristics and regarded with pride the attainment of having organically uni-
420 ted the towers with the nave, carrying them with an excessive luxury of external architecture to a height of 514.96 ft., and even made a show of a multitude of these non-ecclesiastical accessories, men remained in Italy faithful to the views of the 8 th century, and the new art of the Renaissance made sparing use of these merely external gifts of the Northern art of the middle ages.

The enhancement of the power and the splendor of the interior is a later or earlier the principal affair, as well as the further carrying-out of the architectural idea, the Latin cross with a great dome over the intersection, -- which was laid down in the Cathedral of Florence, in S. Petronio in Bologna, in the pilgrimage Church of Loreto, and in the Cathedral of Pavia, -- and this remained the chief aim, for which purpose mighty towers were not required, or at most those of moderate dimensions.

The mediaeval richly developed Campanile of the cities of Upper Italy during the Romanesque period, the Towers in Cremona, Pavia, Crema, (. Gottardo in Milan, etc., are all struct-

structures not organically connected with the nave; the Gothic Cathedral in Florence places its overrich campanile at its side as a detached building, which lacks its intended spire 97.5 ft. high; the Cathedrals in Milan, Orvieto, and Bologna likewise exist as churches of the first rank without these accessories, and where it was desired to still show afar the "finger of the Lord God" and neither the joyousness nor courage of the tower or dome, they decided on a combination of both; for a tower over the intersection, as executed in Chiaravalle and in the richest manner on the Certosa near Pawia, as a Renaissance work.

The Early Christian towers in Ravenna are circular or rectangular in plan; they are by exception square in Rome. To these two forms adhere most of the Early Renaissance, and on this Early Christian basis must indeed those of S. Spirito in Rome (Fig. 406) be designated as one of the best creations; a closed substructure of four stories connected in pairs by great pilasters.

With this small Roman brick tower may be contrasted the massive, unfortunately unfinished, Campanile in Ferrara, finely constructed of reddish and white marble. It likewise exhibits the bisection of the surfaces of the facades, without low connected stories, but rather lofty ones subdivided by bold architectural forms (Fig. 407), in its way one of the most dignified towers of the entire style, even if not entirely free from a slight tinge of the recently ended art period. On
421 this basis would it have been easier to produce a spirited extension, than by a model-like succession of regular columnar orders above each other. And so might I also place higher[239] the Venetian Campanile of Madonna dell' Orto (Fig. 408) with its simplicity and closed lower stories, than most of those surrounded by columns or pilasters in the later period.

Note 239. From Cicognara. p. 19, 20.

Leo Battista Alberti gave for the bell tower as a detached structure a special prescription, when he preferred the circular form of Ravenna and crowned it by an open tempietto and a domical roof, while he enclosed the ground story by a portico in form of a square.(Fig. 409).

The design may be accepted as spirited, but it has too little inner life. To it adheres the vitally fresh Sanmichele in his Tower at S. Micheli near Verona, which shows above a square substructure great Palladian windows in another story,
422 over this being an octagonal story with columns at the angles, above which as a termination is a circular tempietto with a dome and lantern.(Fig. 410).

The two towers of S. Spirito in Florence (Fig. 412) and of Madonna di S. Biagio in Montepulciano (Fig. 411) are simpler representatives of the style, when that of S. Spirito (begun by Baccio d'Agnolo; died 1543; and completed from his design under the rule of Cosimo I) is more original in treatment and is not restricted to motives previously employed, like that of the older Sangallo. Like the adjacent Church, it may be "one of the most perfected structures of the High Renaissance"; but the lack of a certain warmth must also be recognized in it. It is true that in spite of its defective twin brother, that only rose a few yards in height, it stands finely in the general group, and according to Laspeyres [240], "its value especially consists in this, that in contrast to so many projects for towers, on which the Renaissance masters exhausted their gifts of invention, it must have made the great change from paper to stone so readily, that nothing essential to the first idea of its author was lost. A master tower of the art period in which, so to speak, the creed for towers found expression."(Fig. 411).

Note 240. Laspeyres. p. 19, 20.

On a square mediaeval substructure changed into an octagon, as in Montepulciano, rises the upper portion of the Tower in Modena (Fig. 413), which is not entirely free from mediaeval forms, yet still remains a sound and interesting creation. As the last link in the chain may be mentioned the square Tower of S. M. del Carmine in Naples (restored in 1769), likewise changed into the octagon, which is at least picturesque with beautiful effect (Fig. 414) and is otherwise well developed.

As endurable efforts of the Barocco style may be counted the double towers of S. Alessandro in Milan. What Maderna

designed for S. Pietro in Rome were beautiful pavilions on broad substructures, but not towers, and what Bernini gave certainly did not lack picturesque charm; "the graceful form of the towers, the open and portico-like treatment of the stories, the avoidance of large wall masses,[241] are to be
423 praised and acknowledged in a high degree; but the solution appears somewhat theatrical and too little earnest in comparison with the other portions of the building." Under the same judgement falls the side towers of Juvara on the famous Superga near Turin.(1717-31). (Compare Fig. 498).

Note 241. Compare Gurlitt. P. 351-358.

Likewise what master Vanvitelli did with the bell-tower on the Sasa Santa in Loreto did not enhance his fame.(He created the two stories and the swelled dome).

Giuliano da Sangallo furnished for S. Lorenzo in Florence the drawing for a campanile,[242] that does not belong with the happiest things created by the master, and that it was not built scarecly remains to be lamented.

Note 242. See Geymuller.-- Giuliano da Sangallo, Plate 2, Fig. 6.

Guarini's Tower on S. Gregorio in Messina is heavy, and its domical roof is surrounded by spiral ornaments, which is crowned by the papal tiara with two crossed keys, forming a "Barocco eccentricity", that does not have its like in Northern Italy.

To this last experiment is also opposed one of the earliest examples of Renaissance art by Bernardo Rossellini,[243] the campanile at the Cathedral in Pienza, completed in 1468 in travertine stone. Dry and poor the beginning, turgid and eccentric the end, -- splendid alone being the intersection tower of the Certosa near Pavia!

Note 243. See Geymuller, Pl. 11; also Fasteyree, p. 18.

298. Sacristies.

Other later additions, frequently on the North side of the church, but regularly placed in the vicinity of the high altar, are sacristies, which were intended for the use of the clergy, for storing the ecclesiastical vestments, the church treasures and books. After the 13 th century, they were like-

likewise supplied with altars and were used as oratories. They frequently form in the Renaissance splendidly executed and treated architectural parts of the churches, as shown in S. Lorenzo (1426) and S. Spirito (1496) in Florence (Figs. 63, 64)[244] which were built as charming little central structures, with which are connected the names of the most famous artists, Giuliano da Sangallo, Cronaca, Sansovino, and Brunellesco.

Note 244. Also see Laspeyres, plate 10.

A very extensive design must be the new Sacristy of S. Pie-
424 tro in Rome, built by C. Marchioni (1776-80), which is connected with the Church by two corridors and contains the general sacristy in a domed room 49.2 ft. square; 15 subordinate rooms also adjoin the latter.[245]

Note 245. Compare the ground plan in Letarouilly-Simil, Vol. 2, plan 56.

Chapter 30. External Architecture of Churches with one Aisle and the Basilican.

299. Review.

"Early Christian architecture gives as the external architecture for enclosing the interior only the wall masses absolutely necessary and nothing beyond this." Merely the entrance facade received a richer architectural development, even mosaic ornamentation, as for example, on the Cathedral in Parenzo and at other places, while the sides and choir remained in rough masonry. The Protorenaissance proceeded in the same manner with S. Miniato al Monte in Florence. On the contrary, t the Romanesque and Gothic middle ages extend the architectural members over the entire exterior and even develop a maximum richness on the choir and on the sides.

As on the palaces, we must also here define certain tendencies that influenced the form of the exterior. Here as there were mediaeval and antique elements, with which they are connected; frequently was the mediaeval system retained, then being covered by Renaissance forms (interior of S. M. della Catena in Palermo and S. Francesco in Romini, -- pointed arches resting on pilasters with broken entablatures); they attempt-

attempted tastelessly and clumsily to succeed with the antique alone, until men believed that they had found in the realization of the antique temple facade or in the architectural arrangement of the Roman triumphal arch the proper means of expression for the Renaissance church.

300. Antique Tendency.

The antique tendency is followed in a still timid way by the little Brotherhood Church dell'Oca in Siena,[246] the Church S. Pietro in Montorio (Fig. 415) and S. Agostino with its basilican design (Fig. 416), both in Rome. The cornices, doorways, angle and wall pilasters, even though still restricted in detail and in proportions, yet are otherwise executed with convic-
425 tion, where the mediaeval rose window still retained its ri rights, until in the facade of S. Andrea in Mantua, the Renaissance freed itself from every reminiscence of the directly preceding art period, and in a yet higher degree in the main facade of S. Giorgio in Venice (Fig. 417), where in place of the graceful proportions and the gabled form of S. Andrea, the proportions and forms of the antique Roman temple in the perfected style appear.(Fig. 418). The later period abandons the great order on the wall surfaces and takes up the treatment of the facade in two stories, at first indeed by the need of an elevated loggia for the dispensation of the blessing, -- Urbi et Orbi, -- as on S. M. Maggiore, the Lateran Church, S. Marco, and S. Apostoli, all in Rome. An exception is here
426 made by S. Pietro, wherein the two stories are found within the retained colossal order.

Note 246. See Geymuller; Fornasco di Ducia del Quasta, Pl.1.

As Alberti employed on his palaces the small orders in stories above each other, like Roman facades of theatres, so he attempted to adapt the same basal idea to the entrance facade of S. Francesco in Rimini, according to existing remains and to the commemorative medal[247] of Matteo de' Pasti in 1450, but which he again abandoned on S. Andrea. The Baroque adopted by preference the smaller subdivision of the height, as represented by S. Alessandro in Milan, S. Trinita in Florence, S. M. a Scalzi in Venice, S. Vincenzo ed Anastasia, S. M. in Campitelli, S. M. della Pace, and especially by the Church Gesu in Rome.(Fig. 419). Even on the Gothic substructure of S. M. No-

Novella in Florence, Alberti knew of nothing else to add, except a series of small pilasters with an antique temple gable.

Note 247. Reproduced in Müntz, Vol. 1, p. 407.

For the basilican design, a difficulty always appeared on the facade' the connection of the low roofs of the side aisles with the raised clearstory. Men were given the choice of ta-
427 king the solution in the Early Christian basilica, which is
428 properly no solution at all, or to extend the side aisle in form of a portico on the gable facade, when the portico received the same shed roof as the side aisles, or of permitting the end walls of the shed roofs to adjoin the gable of the middle aisle, as the slope of the roof demanded or caused. Examples:-- S. Crisogono (Pl. 42)[248] S. M. in Domnica, Basilica Liberiana (Pl. 61)[248], S. Giovanni in Laterano (Pl. 70),[248] Basilica Vaticana (Pl. 80)[248] S. Paolo (Pl. 80),[248] and Basilica Ostiense (Pl. 82)[248], where the Roman half pediment, or for curved roofs, the quadrant form appeared. Men might likewise experiment with something novel.

Note 248. Canina, L. Ricerce sull' Architettura piu propria dei Tempi Christiani. Rome. 1846.

Alberti chose the latter method, that the late phase of the
429 Renaissance also followed, while Palladio continued to adhere to Roman models. The first artists of the Renaissance placed before the shed roof the console, elsewhere a transitional form on a small scale, here transferred to a large one.(Figs. 420, 421). In order to make this form endurable on a great scale, he inspired life into its outlines by a delicate inlaid ornamentation and thus created a classic model on S. M. Novella in Florence (Fig. 421 B). Translated into relief, sometimes convex or concave, extended or much swelled, it later became the favorite motive of the succeeding, and especially of the later period (Figs.420 A, 422, 423),frequently offending good taste, or it was even increased to ugliness, often depressing the other details.in the general mass, as especially occurs on S. Agostino in Rome. On account of their tastelessness, the consoles in Fig. 416 are suppressed in the reproduction of the otherwise so chastely designed facade, with reference to the facade of S. Francesco al Monte near Florence,

where is retained next the clearstory the similar arrangement without consoles.

On the contrary, how simply did the architect treat the village Church at Isola Farnese, and yet how charming and unaffected is this little church building! (Fig. 424).

But it must be said, that according to clear and broad views, the execution of the facades on the most important churches
430 remained incomplete. Not a single one of importance is given by Brunellesco, Michelozzo, Rossellino, Cronaca, or by the two elder Sangallos. What Giuliano designed for the facade of S. Lorenzo in Florence[249] (4 designs) is scarcely satisfactory. They are merely disconnected decorative pieces, behind which anything else might stand just as well as a church. A basilican design would scarcely be sought behind such; an attempt to solve the conflict between the slope of the shed roofs of the low side aisles and the raised middle aisle has purposely erred. The side facades, so far as their designs do not come from the mediaeval period, as for example, on the Cathedral in Como, remain simple and plain, as shown by the basilicas of Brunellesco. Without any subdivision of the walls by pilasters or columns, windows are arranged on the latter at regular axial distances. If an architrave extends along the entablature, it projects little from the wall surface, as on S. Spirito in Florence, or it is apparently supported by flat consoles at definite intervals, as on S. Lorenzo.

Note 249. See Geymuller; Giuliano da Sangallo. Pl. 9.

There is indeed best expressed what the masters of the Early period desired; simple and yet dignified in proportions, yet with the avoidance of every useless or merely decorative accessory. Circular windows in the walls of the side aisles, tall round-arched ones in the high clearstory walls and a sub-
431 division of the external walls of the choir chapels by blind niches and pilasters.[250] The side facades of the Church dell' Osservanza in Siena have in addition to the cornice with consoles only a few round windows (bulls-eyes) as the sole architectural subdivision.

301, Medieval Tendencies.
Note 250. See the proper illustration in Laspeyres, Pl. 6.

432 The forms of facades still influenced by the middle ages

invariably exhibit more warmth and are more like the inventions of the Northern peoples in the matter of church building. How far these were influenced by the power of habit, by education, and by impressions in youth, and how far an objective decision remains thereto, we will not investigate. The facts 433 remain uncontested; we also gain interest in these creations after repeated visits and studies of Italian art monuments, rather than return from there with a progressive knowledge of the inner nature of the Renaissance. And whoever wishes to promote today church architecture in the style of the Italian Renaissance, who will labor more joyfully and with greater results , then will he commence with these productions, rather than with the endeavors of the later period, now hunted to death. In the former is still to be found living novelty, but not in the latter. And just in the smaller churches, oratories and chapels, were the most charming things attempted; for these became "state portals" by their overrich employment of ornamental motives, decoration by figures, and finely wrought small subdivisions. The Confraternity dei Laici in Arezzo,[251] S. Bernardino in Perugia (built 1461; Fig. 425), the small red brick facade[252] of S. Spirito in Bologna, the Madonna di Galliera in Bologna, may prove this. Compare in the same sense the Memorial Chapel of S. Andrea before Porta del Popolo in Rome 434 (Fig. 427) with the Oratory of S. Spirito in Bologna, and the little Chapel near Ragusa (Fig. 428), -- which is more capable of development, which has the more soul?

Note 251. See Lasyeyres, pl. 39: also Geymuller.

Note 252. See Zeits. f. Bauw. 1864. p. 22.

But how powerfully it was likewise executed on a great scale is shown by the facade of the Certosa near Pavia (Fig. 429)! "Its motive, independent of the antique orders, is that of the Lombard-Romanesque, a graduated church facade with projecting pilasters and transverse arched galleries; within these fixed forms is sheltered all conceivable richness in wisely graduated expression. The facade stands there without and like, famed throughtout the world for its overrich ornamentation, and aside from this, perhaps the one best conceived in the 15 th century."-- Thus Burckhardt, after he had changed his formerly

incorrect opinion after repeated visits to the building.[253]

Note 253. See Burckhardt, J. Der Cicerone. Basle. 1860. p. 120, 121.

302. Facades with Special Forms of Roofs.

As a third group should be remembered a number of churches indeed proceeding from Venice, in which the form of the roof is expressed on the facade as correctly as could be desired: in these the roof of the middle aisle has a semicircular shape or the form of an inverted ship, and the roofs of the side aisles exhibit the quadrant shape. The antique gable and shed roofs are abandoned and a form is chosen, which secular public buildings of the Early and Late periods of the Renaissance likewise show. (Palace del Consiglio in Padua, Palace del Commune in Brescia, called La Loggia, Basilica in Vicenza).

Magnificent is this new idea, yet more interestingly expressed by the peculiar construction on the Cathedral in Sebenico (Dalmatia), according to the cross section in Fig. 430. Its purpose is expressed in the facade. Begun in the Gothic, continued and completed in the Renaissance style, constructed in white Istrian limestone without a bit of wood! The main and side facades still show Gothic portals, windows, and cornices, and the choir windows have a pretty combination of Gothic tracery and Renaissance supports. A work perfect in itself, which demands the highest appreciation.(Figs. 431, 432).

Here also belongs the little Church S. Salvatore in Ragusa (Dalmatia) on which behind the semicircular stone pediment is indeed placed a low gable roof, but which appears not less beautiful in exterior, in proportions, and in details. (Fig. 433). On account of unity in composition and style, this facade can be placed higher than that of Sebenico, and the little facade of S. M. dei Miracoli must also be more highly esteemed than the large one of S. Zaccaria in Venice.(Fig. 434). On S. 435 M. dei Miracoli, the form of the roof determines the semicircular stone pediment; on S. Zaccaria, the pediments are merely ornamental pieces!

In this group, even if not pure in the ending of the system of the facade, is to be placed the little Church in Lonigo near Verona (Fig. 435), also conditionally S. Giovanni in Monte at Bologna, with the motive of the semicircular and quad-

quadrant pediment in the dryest conceivable form[254] (the 13 th, 14 th, and 15 th centuries were busied on it). In this group likewise might have been carried on a further development with good results.

Note 254. A representation of this building is to be found in Malaguzzi Valeri, p. 74.

303. Building Materials.

As for the palaces and public buildings, crystalline and common limestone was employed as the building material for these works, travertine being preferred in Rome (S. M. Maggiore, S. Pietro, S. M. del Popolo, etc.), sandstone in Tuscany, wrought by the stonecutter, rubbed, hammered, or also coated with stucco, as on S. Spirito in Florence, on S. M. da Carignano in Genoa, and on the Steccata in Parma. Bricks and decorated terra cotta were used in monochrome and polychrome work in all Upper Italy, in Bologna and down toward Siena (S. M. della Grazie in Milan, Certosa near Pavia, S. Caterina in Siena, etc.), then marble veneering on the magnificent churches of Venice and Genoa, likewise in Florence and other places, as well as mosaic. (S. Miniato near Florence).

304. Base.

The arrangement and the development in forms of base, portal, windows, and cornice require richness, and the effect of the facades, the alternations between openings and masses, earnestness or a more pleasing exterior of the structure.

According to the expenditure for the facade was likewise arranged the treatment of the base, as in secular buildings,
436 proceeding from the simplest to the richest. Without any special prominence thereof is the wall masonry executed on S. Francesco al Monte near Florence, and as a simple plinth with a transition moulding on S. Lorenzo and S. Felice there. Like a pedestal, on account of the subdivision of the facade wall by columns and pilasters, is the base constructed on S. M. Novella in Florence, on S. M. a Scalzi in Venice, and on S. Paolina in Lucca, and it is divided into three parts with plinth, dado, and cap, on S. M. de' Miracoli in Castel Rigone. (Umbria).

As a seat step, just as on Tuscan palaces, do we find the

base on S. M. delle Carceri in Prato, on Madonna di S. Biagio in Montepulciano; with a threefold division above this on the Church della Madonna in Mongiovino, and as vertical ashlarwork with an ornamented crowning band on S. Francesco in Rimini.

The base on the facade of the Certosa near Pavia (Fig. 436), -- without model and without imitation; for only once in the
437 world is such richness executed, -- is composed of a lower part adorned by small pilasters, whose intervals are filled by medallions of Roman emperors, over this being a part with relief sculptures from Biblical history, enclosed by decorated frames with angle medallions between splendid pilasters.

305. Portals.

Beginning with the richest treatment of a main entrance, the portal of the Certosa already mentioned is to be placed
438 in the first rank. Coupled columns support an antique entablature, above which rises an arch enclosed by a rectangle and with tympanum decorated by figures. (Fig. 437); then the fine portal of the Cathedral in Como, where the internal and the external sides of the Southern entrance doorway are arranged with coupled pilasters between niches with figures, above it extending a richly ornamented antique entablature, spanned by a triply subdivided semicircular arch, the middle one of these being divided radially and showing ornamentation containing figures in relief, while the sculpture in it has for its subject the Flight into Egypt. The arches are enclosed by a rectangle, and over this is constructed an antique tympanum, that shows the Figure of our Saviour surrounded by angels' heads. The inner side is more simply formed, and it is only noted, that there the shafts of the pilasters are divided in height into 3 panels, which are adorned by niches with figures. A superfluity of richness with tall candelabra columns and luxuriant figure ornament, with a shrine containing a Madonna surrounded by musical angels and boys, is shown by the Western portal of the Cathedral, perhaps an architecturally criticizable composition, but one of the most costly creations of the Early Renaissance in Upper Italy. What wealth and grace of motive, what wonderful execution, to which even the Certosa has nothing better to oppose! 255 The portal of the

left side facade (1505-7) is due to Tomaso and Giacomo Rodari.

Note 255. See illustrations thereof in Santo Mondi, Plates 12-17; also in Barelli, plates 16, 17-20.

439 Another precious gift of the Early Renaissance is the interesting conception of the middle entrance to S. M. dei Miracoli in Brescia (1500-23), a design only to be explained by the peculiar purpose of the building. Four free columns form a kind of porch, that supports a richly ornamented closed superstructure; this may be regarded as a "stone reliquary", beneath which is the entrance to the interior. "Handsome and radiant in its inexhaustible wealth of detail, the middle part of the facade projects," charming the observer and causing him to forget at first the unstructural character of the whole.[256]

Note 256. See Meyer, part 2, p. 225 et seq.

As another magnificent piece should be also mentioned the portal of S. M. Maggiore in Bergamo. The columns beside the
440 entrance support these strongly ornamental consoles, on which rests a semicircular coffered tunnel vault, that is again enclosed by a rectangle on its front. This upper projection affords additional protection to the tympanum and to those entering during bad weather.

The Tuscan and Roman churches of the Early period are satisfied with a simple treatment, for they renounce the superfluity of ornamental decoration and receive rectangular pilasters instead of columns, but which then again support an
441 antique entablature with arched roof and tympanum (Fig. 438; portion of the portal of S. M. della Quercia at Bagnaja). To the rectangular pilaster succeeds, retaining other ornamental accessories, the Corinthian pilaster with low relief at the entrance portal of the portico of S. Marco in Rome and an the Badia at Fiesole (Figs. 439, 440); on the latter is also arranged above the entablature an attic-like superstructure, that is crowned by a vacant semicircle with acroterias at the angles and apex.

442 The exteriors last mentioned show original and masterly t
443 treated mouldings, and especially the portal of the Badia,
444 which easily permits recognition of the architects as designers in the first rank, as likewise shown by the entire noble

exterior with its wonderfully beautiful proportions.

445 How brick architecture solved the problem is shown by Fig.
446 441.; the fine portal of S. Caterina in Bologna with triply
447 448 stepped pilasters and the shell above the antique entablature,
made of red terra cotta, -- an ornamental piece of decoration
of the first rank.

Most simply appear the entrance portals on the early churches in Siena and Rome; as plain doorways with horizontal or pointed caps, as on S. Pietro in Montorio (Fig. 415) and S. Agostino in Rome (Fig. 416). A doorway with columns and a pointed cap is shown by S. Salvatore in Ragusa (Fig. 433). On a design with three entrance doorways on the main facade, there is usually arranged a larger central doorway with two smaller side doorways of similar form.

Columnar portals with broken and curved pediments, with cartouches and sculptures above and between these, belong to the Barocco period, and there may be named as examples; S. Gregorio in Messina, S. M. in Campitelli at Rome, S. M. da Carignano in Genoa (Fig. 486; general view of the Church), and many others.

The doorway openings were closed by simple framed folding doors generally made of larch wood, or by panelled leaves with carved framework, as for example, on the Colleoni Chapel in Bergamo (Fig. 246 c), and similarly on the Baptistery and on the Cathedral in Parma; the main and side doors on the latter are executed with carved rosettes on the panels and with bronze pins at the intersections of the framework; high up on a transverse piece is inscribed:-- "1493. Luggiaus Blachinus Parmens. cocinavit." (Should be concinnavit).[258] Magnificent wooden doors are still to be found on the Pazzi Chapel in Florence.

Note 258. Also see Burckhardt. Der Cicerone etc. Edit of 1898. p. 409.

Bronze doors ornamented by reliefs are still preserved for us in the old Sacristy of S. Lorenzo in Florence (already referred to; see Figs. 246 a to b); Fitted in bronze jambs and most wonderful in all ages are those of Lorenzo and Vittorio Ghiberti in Florence, whereby the fame of Andrea Pisano (1336) is not lessened, who furnished the first bronze doors for the

same building. On these are vividly natural compositions in relief in quatrefoil panels; on the former are rectangular panels that receive figure representations. Lorenzo Ghiberti executed one pair of leaves in 1403-24 and the other in 1425-52, while Vittorio, the son of Lorenzo, made the jambs of Pisano's doors (1452-62); they remain one of the world's wonders, and the great Florentine did not err, when he said that they were worthy to adorn the gates of paradise. The door jambs have flat ornaments on the side surfaces, and on the front surfaces are garlands of fruits, birds, as well as h heads, full and undercut work, "yet as naturalistic as if cast from the object itself."(Fig. 442). The external surfaces of the doors were once entirely gilded; vestiges thereof still remain in abundance, which with the patina of the bronze have a charming effect and correspond to our modern taste better than in the original condition.

Likewise Filarete's bronze doors of the great central portal of S. Pietro (1439-45) should not be forgotten here, even though they do not attain to the power and charm of those of
449 Ghiberti. What Pope Eugenius IV had executed on the foremost church of Catholic Christendom was excelled by Florence. 259

Note 259. On the value of this work, see Meyer, Vol. 1, p. 82.

306. Windows.

The windows in the clearstory and the side aisles are formed as plain round openings, or as richer rose windows with radial bars (Rome, Sebenico, Ragusa, Florence), besides which
450 occur the tall and narrow round-arched form, quite in the mediaeval style, or they are spanned by lintels and even by segmental arches in the late period. Their architraves have the simplest mouldings, which again give place to very rich forms.

The transition style exhibits in Fig. 448 one rectangular form: the lintel is supported by a small and slender Tuscan column; beneath the former are found two coupled round-arched windows with mediaeval tracery.(Choir window in Cathedral in Sebenico). The Early Renaissance gives a rich example of another rectangular window (Colleoni Chapel in Bergamo) with great use of pilasters, small fluted and twisted columns and

candelabras, free figures and medallions. The use of marbles of different colors and overloading with ornamental forms give to these windows something of a **secular** character, although the peculiar obstruction of the opening.fof light (Fig. 444) by little columns set closely again lessens this.

Here again the Certosa near Pavia presents the climax (Figs. 445, 446) by the strength of its love of ornamentation, yet with clear and good proportions. The slender and tall double windows, whose arches are borne by candelabra-like supports, is enclosed by a rectangular architrave, and this again by a second, which is covered by a frieze and a cap with the richest sculptures; on the cornice lie dragons with coiled tails or scrolls, on which rest female figures, or which festoon an interposed candelabra. The whole projects from a ground of square panels with medallions and shields of arms, -- the proudest, that the decorative sculpture of Upper Italy has ever created in architectural details!

Likewise has the master of the Cathedral in Como omitted no means of making its basally Romanesque windows with splayed jambs imposingly ornamental by pilasters and pediments(Fig. 448), while again the Tuscans remain as plain and simple as possible in the architraves of their windows (Fig. 447); compare also S. Annunziata in Arezzo, S. Spirito in Florence, etc.).

451 The Barocco style employed wider openings for light and gave architraves to them, which vary but little from those of the windows of contemporary palaces.(Fig. 449).

Early Christian architecture favored light in the interiors of churches; men preferred light rooms. The admission
452 of light usual in Rome occurred in an effective and beauti-
453 454 ful way through the windows of the clearstory, while in Ravenna the side aisles and apses also received windows for light, which as already stated, was connected with the position of the altar at West or East, and which the Roman Christians placed in the West, those of Ravenna in the East.

During the middle ages, daylight was also shut out in Italy by dark and colored glass. The Renaissance could not use th these on account of the richly colored decoration by the pain-

paintings on the walls and ceiling and was satisfied with transparent pieces of glass set in leads, arranged in pleasing patterns. Clear and beautiful daylight; all mustical effects excluded!

The closing of window openings with glass was known to the Early Christian period, as well as in antiquity; but its use was more limited. perforated stone slabs and wooden lattices, transparent gypsum, fluor spar (fenestrae gypseae), must have served as substitutes therefor. The Protorenaissance still employed in the choir of S. Miniato thin polished slabs of marble for closing the windows, which in the morning, while the sun is still low, admitted in the most charming way a warm yellowish light into the interior.

Tasteful patterns of leading were moreover already common in the churches preceding the Renaissance; men preferred small round pieces, which on Reichenau were already mentioned as filling church windows already under Abbot Linthar (934-49). 260

Note 260. Compare Geiges, F. Der alte Fensterschmuck des Freiberger Minsters. Freiburg. 1902. p.30.

The windows of an aisle in the Certosa near Florence still possess painted glass, paintings in different colors on transparent glass, allied in composition and in the use of colors to those in Library Laurenziana in Florence. The outermost
455 side chapel of S. M. Novella in Florence, left of the choir and of one entering, likewise still possesses two windows with transparent glass, that bear the arms of the Medici, here the 5 red balls occur on a yellow ground and yellow crosses on a blue ground. The chapels directly on the left of the choir still exhibit remains of an original, though simple, Renaissance glazing. The same Church has in the round windows of the clearstory pieces of clear glass with a coat of arms in clear and colored glass inserted at the centre.

S. Lorenzo in Florence has moderately large pieces of clear common glass, while the round windows in the choir of the sacristy exhibit pieces with a colored round piece. The windows of the famous Chapel of the Medici in S. Lorenzo are each closed by six simple pieces of white glass. The windows in S. Spirito at Florence likewise have white pieces of glass of

square shape (68 pieces in each window), and they bear a colored medallion in the central space (eagle with colored border). A small window above the altar of a side chapel is for about one-half glazed dark with a colored shield of arms supported by cupids; above this again succeed transparent pieces with leading in good patterns.

A window of the Church Maddalena de' Pazzi (Via de' Pinti in Florence), in a side chapel on the left, is enclosed by a narrow colored border, has white pieces of glass like mother of pearl, colored sapajous, a colored medallion at the centre with a coat of arms (lion and boar as heraldic animals, also another with a figure).

307. Entablatures.

The entablatures mostly bear the antique character and accordingly consist of architrave, frieze, and cornice, treated with more or less richness in details. The architrave is divided into several bands, the frieze is plain or is beset with round disks, and also by festoons, the main cornice is only furnished with crowning and supporting members on the projecting portion, or with egg-and-dart mouldings, agreeing with the normal Corinthian cornice, as is the case on the Chapel of Palace Turchi, and the Churches of S. Caterina and S. M. delle Neri in Siena.

The Church Osservanza in Siena has a simple modillion cornice without frieze or architrave, the Cathedral in Como the richest membering with echinus, dentils, and modillions.

S. Lorenzo in Florence exhibits a noble, though simple treatment without the use of decorated ornamental members, the main cornice without dentils and modillions.

The same treatment is applied to pediment cornices, as the execution shows on S. Agostino in Rome, S. Giorgio in Venice, and many others.

Chapter 31. Interiors and their Parts.

308. Interiors.

The effect in the interior is in the first place determined by the arrangement of the plan, is also dependent on the design with one or several aisles, then on the mode of treatment of

the ceiling, and lastly on the subdivision of the walls. That the arrangement of the windows, their magnitudes and the mode of closing them, and the combined effect of monumental paint-
456 ing and sculpture also largely contribute, has previously been stated. The impression of nobleness must be produced by the architectural exterior; that of magnificence depends on the costliness of the materials, and especially on the nature of the decorative treatment of the interior.

The most splendid things were herein attempted by the Renaissance and were also realized, as shown by the Certosa near Pavia, S. Pietro and the great basilicas in Rome, distinguished by noble conceptions. A superabundance of the noblest building materials, of marble and of noble metals, stucco-work and painting, with the highest development of magnificence, are exhibited by the church interiors of the Barocco style. (Compare Church Gesu in Rome and the churches of Southern Italy in their frequently offensive obtrusiveness).

309. Ceilings and Roof Trusses.

With the so-called visible roof trusses as a ceiling, though with variously colored painting thereon, the Protorenaissance is satisfied in S. Miniato, and without this, the Early Renaissance in S. Francesco al Monte in Florence and S. Francesco in Rimini.

It was followed by the horizontal coffered ceiling of wood, after antique models of a good period, with square or rectangular panels between enclosing timbers at right angles, the intersections beset with rosettes. The two most beautiful examples of this kind must be that executed by Marco de' Dolci (1467-71) in S. Marco (see Plate succeeding page 456) and that by Giuliano da Sangallo[261] in S. M. Maggiore at Rome. The former is treated in blue, violet, and gold, as in the adjacent Plate, the latter in white and gold, with "wisely moderated richness of golden ornaments on a white ground, which is but seldom found elsewhere."

Note 261. Vasari ascribes the ceiling to Antonio. -- In the May number of "Rassegna d'Arte" it is sought to prove that Alberti was its master.

A very magnificent work in the same sense is likewise the

still strongly subdivided ceiling of the Cathedral in Pisa from the end of the 16 th century. (See Plate next page 138). A white coffered ceiling painted on a blue ground and of the early period (1497, by Pier Antonio dell' Abbate) is well preserved in the upper story of the Scuola del Santo in Padua.

From the principle of the subdivision into coffers based on the construction with ceiling beams differ the wooden ceilings of the later period; a fanciful division without any organic connection with the interior, a play of polygons, rounds, elongated painted panels and the like, -- supplants the organically subdivided older form. All these ceilings are left in the natural color of the wood, or they are painted in different colors.

"With happily combined architectural and plant richness" is to be mentioned in the former kind the well carved ceiling of the Badia in Florence (executed by Segaloni in 1625), and among the colored, that of the Annunziata by Ciro Ferri, with as a gayly painted Barocco work, the gilded ceiling in S. Appolonia in Florence. As already degenerate, but "as a bold piece of magnificence", is yet to be cited the ceiling of S. Stefano de' Cavalieri in Pisa, constructed after 1600.

As a work of about 1550, the coffered ceiling of the Church S. Pietro in Perugia is worthy of mention, and as a beautiful piece of "wooden vaulting," the ceiling of the right side aisle of S. Giacomo dell' Orto in Venice.

The most imposing and magnificent coffered ceilings are presented by the Roman Barocco style with its frequently bizarre
457 limitations, in which besides the use of rich gold, the colors blue, red, green, and white, are also employed. Most were executed about 1600, among them being the finest in S. M. Trastavere at Rome. Others are to be found in S. Crisogono, S. Cesareo, Araceli, in the Lateran, in S. Agnese, etc.

Vaulted stone and horizontal wooden ceilings were constructed in the interiors of the great basilicas of Brunellesco, in S. Lorenzo and S. Spirito at Florence, where the middle aisle shows the horizontal covering, while the side aisles and the intersections are vaulted, the latter in the form of moderately developed domes. (Fig. 450; interior of S. Spirito).

Complete vaults over all parts are shown by the already mentioned churches of the Transition style, among others:- S. Maria della Catena in Palermo, the Cathedral in Sebenico, and of the Earlier Renaissance, the Cathedral in Como; as well as S. Andrea in Mantua. In the latter, Alberti utilized the coffered tunnel vault, which then, with and without intersecting compartments, remained a preferred motive of the Later Renaissance. (Compare S. Giorgio in Venice and S. Pietro in Rome).

The sole very important influence on the forms of Renaissance vaulting was retained by antique art, whose mighty undertakings in the domain of the art of vaulting were carried on at a greater scale than at present, especially in the great designs for baths.

The middle ages could offer little to the Renaissance under such circumstances: it felt itself far more strongly attracted by the great structural undertakings of the antique, and it continued to be rather disposed against the supposed attainments of the art period first mentioned. In this sense is the antipathy of the Renaissance to the cross vault characteristic, that Baccio Pintelli (1580) even employed in his churches, though without ribs. "Dolcebuono was the last, who produced a
459 light and noble effect with ribs and oblong cross vaults;" in Monastery maggiore at Milan. In S. Agostino in Rome, Pintelli still retained the mediaeval projecting diagonal ribs, but as previously stated, he omitted the separating ribs between the separate compartments.

More favor was received by the "disguised" cross vaults, which were developed into spherical surfaces towards the crown, and in this form were better adapted to receive surface ornamentation.

The prevailing forms continued to be tunnel vaults with semicircular or elliptical cross section, especially those with intersecting transverse compartments, next the regular and irregular spherical vaults (Bohemian vaults), as well as the spherical dome on pendentives, and for apses and chapels, the true quarter sphere or niche vault.

The surfaces of the vault were either plain and coated with plaster or animated by coffers (S. Andrea in Mantua), covered

by paintings (Choir of S. M. del Popolo in Rome with the magnificent color decoration of Pinturiccio), entirely covered by stucco ornaments, as on the domical vaults of Madonna delle Grazie at Brescia (Fig. 451), or adorned by both stucco-work and painting, as on the vaults of the side chapels in S. M. sopra Minerva at Rome.

810. Wall Surfaces, their Decoration and Subdivision.

The subdivision and decoration of the wall surfaces in the bays of the middle and side aisles are determined by the arrangement of the openings for light, by the dimensions of the enclosing and supporting elements, and by peculiarities in the arrangement of the ground-plan, as well as frequently by the chosen kind of ceiling.

A representation of the solution of the problem for an interior in a single aisle with chapels is given in Figs. 452,453, where it must be remembered, that S. Francesco near Florence has the so-called visible roof trusses and S. Maurizio in Milan a vaulted ceiling.

In both cases were executed special subdivisions in the bays, that are marked by pilasters. The same is the case in the illustrations shown in Figs. 454, 455, vaulted churches of the later period, where the points of support are especially accented by columns set before them in the antique manner (designs of baths).

The clearstory walls and their ceilings rest on piers, as Alberti built in S. Andrea in Mantua or as is the case in S. Pietro, and then the Renaissance adopts the same effective motive, that was employed with such success on the facades of palaces (Cancellaria in Rome, P. Bevilacqua in Verona), -- the rhythmic bay (Figs. 456, 457), producing therewith the like imposing effect as in secular buildings. But still more peculiar was the effect, when the pier was resolved into two supports by interposed arches, as in S. Salvatore in Venice, and these were joined in the middle aisle by narrow tunnel vaults like widened transverse arches, between which rose small domes on pendentives. The tunnel vaults in the middle aisle continue in the side aisles, while the low arches between the piers become side arches of the small domes lying in

the side aisle behind them.

If the column as a support of the clearstory enters into its ancient rights, then it also receives the antique entablature block between capital and impost of arch, as in the two Basilicas of Brunellesco in Florence, where it is sought to make a good intermediate form of the impoverished type introduced by the Late Roman and mediaeval art. Above the arch on the columns, the wall surfaces in the Florentine buildings mentioned remained without further subdivision: they were only animated by the tall windows. (Fig. 458).

But in porticos and courts the detached columns were omitted, and those coupled in pairs occurred, and the like change was perfected in the supports of the middle aisle, where this was also followed by the innovation introduced by Alessi. (Compare the beautiful 3-aisled Church of S. Siro in Genoa with a series of chapels: the columns there stand on a common base; the shafts are monolithic and of white marble; the antique entablature borne by them consists only of an architrave
462 divided into two bands with a cornice above it. angels' heads with wings and scroll ornaments adorn the longer sides of the architrave).

Combined in fours, standing on a common pedestal and first receiving a complete antique entablature, we regard the columns in S. Giorgio dei Genovesi in Palermo (Fig. 459) as supports of the middle aisle.

The Florentine basilicas were satisfied to show the polished sandstone of the locality without disguise for all architectural members, to cover the wall surfaces with white plaster, and to leave this as the only decoration. The Genoese and the Venetians did otherwise, and especially the Northern
463 Italians in contrast to their kindred in the South, who demanded color and made the greatest sacrifices for monumental polychromy. How far this went is eloquently evidenced by the walls and ceiling of the single-aisled Sistine Chapel in Rome. (Figs. 460, 461). First were tapestry patterns separated by pilasters as the lower zone of the wall, then a second with paintings from sacred history, above being the clearstory with the slender round-headed windows, on the right and left

of these being the solemn forms of the church fathers in niches, then the lunettes and the ceiling vault intersected by compartments never again equalled, not to mention the unsurpassed subdivision and the magnificent paintings of Michelangelo and his "Last Judgement" on the altar wall! Who can resist the charm of such an interior, consecrated by piety and by art? Here must one say immediately on beholding it; "Stop, thou art so beautiful,"--- and so sublime likewise!

311. Floors.

In the best period, men refused in churches the luxury of rich floors, whose splendor attracted the eye from the art forms of the building. A covering of marble slabs in two or three different colors was considered least disturbing and as sufficient. In the Cathedrals of Siena and Lucca inlaid figure representations were executed in marble of different colors, bordered by interwoven bands and a rich border with dolphins, whose arrangement is reproduced in Figs. 461, 462. Domenico di Niccolo (1423), Beccafumi, and other artists were entrusted with the execution; black, white, and red marbles were employed therefor. The originals are now mostly replaced by copies or covered by board floors; the removed original pieces were preserved in the Opere del Duomo at Siena.

Where mosaic floors were employed in earlier works, these repeated the well known ornaments of the Early Christian period and of the style of the Cosmati.(Sistine Chapel; Tomb Chapel of Cardinal of Portugal in S. Miniato; Palace Chapel in Palace Riccardi in Florence). Extensive use is made of glazed colored tiles in the South, especially in Naples. Noteworthy works are still preserved in S. Giacomo and in some chapels of S. Petronio in Bologna, of the period of 1459-87, in Venice (1510), Parma (1471-82), Padua (1491), in the Sacristy of Loreto, a floor of beautiful Sienese work with grotesque ornaments (1500-40), in the Sacristy of S. Pietro in Perugia, one of 1563, and in Naples one of 1440.

465 Chapter 32. Examples of important Single-aisled and Basilican Churches.

Brief historical data and notes on the forms and structure of some important churches of this kind may further complete the statements in the preceding chapters. On account of the abundance of materials, the enumeration must be limited to but a few examples of the different phases of the Renaissance style.

Note 262. Reproduction from Letaroully and Simil. Le Vatican et la Basilique de Sanct Pierre de Rome. Vol. 2. Paris. 1882. Plates 19, 20.

312. Badia near Fiesole.

1. The pediment facade of the Badia near Fiesole, veneered with white and green (Verdo di Prato) marble, is indeed the work of the Protorenaissance in Tuscany.

313. S. Apostoli in Florence.

2. Arcades of S. Apostoli in Florence, built about 1200, with beautiful Composite capitals and delicate antique-like archivolt members' side aisle vaulted.

466 314. S. Miniato near Florence.

3. S. Miniato near Florence (1207), where the form of the 3-aisled basilica has attained a "latest and highest inspiration," The columns bordering the middle aisle are in part antique, as well as some of the 28 little columns, that support the vault of the crypt. The so-called visible roof trusses were painted (now restored); the apse is adorned by a mosaic; (1297, also restored); "Christ between the Holy Virgin and S. Miniatus;" the 5 windows of the choir wall are closed by transparent marble slabs. The dignified facade is veneered with white and greenish marble, whose mosaics are mostly of the 13 th century and are in great part restored. The Church contains true pearls of the minor arts of the Italian Renaissance in the ciborium-altar, in the ambos, and especially in the sepulchral chapel with the Tomb of the Cardinal of Portugal. (d. 1459).

315. Baptistery in Florence.

4. But the most important building is and remains the Baptistery in Florence, built in 1150. In the form of the interior derived from the Pantheon in Rome, but excelling this in

structural respects in the mode of vaulting and the use of lesser wall masses. The octagonal building is veneered with the
467 same materials, as the buildings previously mentioned; the
468 walls enclosing the pointed dome extend higher than the springing of the vault and are covered by a stone hip roof of low rise, so that the dome does not appear externally.

c. Transition Style and Early Renaissance.

316. S. M. della Catena in Palermo.

5. S. M. della Catena in Palermo, built anew on the site of an old church toward the end of the 15 th century,[263] entirely constructed of ashlars, in part exhibits a rather wonderful mixture of dying Gothic and of germinating Renaissance. (See plan in Fig. 402 and interior in Fig. 6). The latter is well restored and is notable for the elevated position of the aisle floor of the Church, up to which leads a bilateral flight of free steps. Of special interest is the portico with its depressed arches and its members, which challenge comparison with allied phases of the style.

Note 263. Hittorf assumes the time from 1391 to 1400.

317. Portico in Arezzo.

At the little Church S. M. della Grazie in Arezzo, the Early Renaissance produced a disproportionally large structure as a portico, that exceeds about three-fold the single-aisled building, while at S. M. della Catena this is not equal to the end of the Church. On the contrary, it exhibits in respect to form perfectly beautiful details and in regard to construction a notable execution of the strongly projecting stone main cornice. (Fig. 465).

318. S. M. in Domnica in Rome.

The High Renaissance omits the portico extending beyond the width of the three aisles and treats it more as affording shelter. Leo X had one such built in 1566 before the Church S. M. in Domnica or della Navicella in Rome, apparently by Raphael, and whose form is given in Fig. 466.

319. Sapienza in Naples.

In the Sapienza in Naples,[264] the Late Renaissance returns to the ground idea of the Transition style: Fanzaga (1591-1678) provided here in the 17 th century one of the most beautiful

porticos for a Church of minor value. About 250 years lie between these four different comprehensions of the same problem: at first showing limitation, then breathing freedom and release, later filled with lofty earnestness and finally rejoicing loudly at the end!

Note 264. See illustration in Max Nohl's Tagebuch einer Italieschen Reise. Stuttgart. 1866. p. 229 and Fig. 396, p.411.

320. Cathedral in Como.

6. The Cathedral in Como is a 3-aisled basilican design, a Latin cross with dome over the intersection and polygonal endings of the choir and transepts, without tower or portico.(
469 (Fig. 467). It was begun in Gothic and completed in Barocco, and in the interior and on the exterior was entirely constructed of white marble from the quarry of Musso sul Lago di Como. On a stone placed on the exterior of the choir is the inscription, that the building was begun in 1396 and that the first foundation stone of the choir was set in 1513. The work was carried on without interruption till 1665, and only the construction of the dome remained, which was begun in 1730 and finished in 1744 with an expenditure of 243,655 liras. The main altar was restored in Rome in 1728, and thus we do not have to do with a uniform work, whose front has remained Gothic. The inscription tablet on the building is supported by cupids and adorned by a coat of arms and chimeras, and it reads:-

Cum . hoc . Templum . vetustate . con
fectum . esset . a . populo . comensi
Renovari . ceptum . est . MCCCLXXXXVI .
Hujus . verso . posterioris . partis . jacta . sunt
Fundamenta . MDXIII . XXII . Decembris .
Frontes . et . later . jam . opere . perfecto .
Thomas de Rodaris . faciebat .

On November 18, 1487, was first mentioned the new model for the choir, perhaps based on a sketch by Bramante, and on March
470 15, 1510, the site first became possible, while according to the preceding inscription tablet on the choir, the foundation was begun on Dec. 22, 1513.

The name of Bramante does not occur in the building records: but not being staisfied with native builders, a Milanese pupil

of Bramante, Christofor Solari, was entrusted with the preparation of another model, that was never executed; finally the Cathedral architect approved it, and he is alone given as architect on the marble tablet.

The wooden model "delle cappelle maggiore" with the drum for the dome is preserved and in the work[265] mentioned below, it is published as a joint work of Rodari and Solari. Santo Monti gives on Plate 9 a representation of the choir according to the model of Rodari (preserved in Museum civico at Como), but which was not executed without change (Figs. 468, 469). It no longer pleased the later persons controlling the Cathedral structure. New designs were prepared, especially said with reference to the dome. Biffi (1684) of Milan first supplied a design, that was not satisfactory. Then comes Cavallo in the series, whose work was paid for in 1688. Thereupon Fontana in Rome was summoned, who furnished a general drawing of the Cathedral with the dome and a section, which were paid for in 1688; he also examined the stability of the 4 piers. Finally in the year 1731, it was decided to begin the dome; but the citizens doubted whether the great masses of Fontana's dome could be supported by the substructure. Therefore they called Juvara again (1731), who stood in high repute as the architect and engineer of the King of Sardinia, and they had new proposals made by him, -- procedures and expenses, which might have all been spared, had the existing good model of the first architects Rodari and Solari been adhered to!

Note 265. Santo Monti.D. La Cattedrale di Como. 1897. Pla97.

Examining the designs of Castelli, Fontana, and of Juvara, one does not feel his heart beat more strongly and merely laments, that his ignorance and want of feeling for style frustrated the good purposes of Rodari. And as esthetics forbid, so must construction suffer, and the dome was built circular in the interior and polygonal on the exterior, in a form and dimensions differing from those of the Church, "because men would not trust or remove the foundations." The name of Vanvitelli is also mentioned with the dome, whose cooperation others will not admit. But we know so much, that the Milanese engineer Merlo remedied the defects in the external form of the dome

(1770) and that shortly before this (1769), the Milanese architect Gaglieri corrected other faults. One would believe this to have occurred in the 20 th century, on seeing this mistreatment of an old building by ignorant officials, architects, and conscienceless building engineers, and a misguided public opinion spoil it. Bodari, who stamped the Cathedral as one of the noblest structures of the Renaissance in Upper Italy, suffered 250 years later by the bungling corrections of his work by a Milanese engineer.

The building records, repeatedly reviewed by Monti, do not name Bramante as engaged in the building, although von Geymüller conjectures on the basis of the comparative criticism of the style, that Bramante had a hand in the game, perhaps through good advice in the form of sketches.

Portals and windows of the nave, the crowning shrines of the buttresses, the urn-bearers before the frieze of the latter, remain eternally beautiful works and also undisputed creations of Bodari.[266]

Note 266. See further the work mentioned in Note 260: also Meyer.

821. Certosa near Pavia.

7. The Certosa near Pavia. A history and description of this extensive and stately building design would alone fill a book. As an orientation may be mentioned the little Essay of Luca Beltrami, "La Certosa di Pavia, con 70 incisioni e 9 tavole (Milan, 1895)": also the larger work of the same talented author may be recommended, as likewise the folio work of Gaetano e Francesco Durelli, already mentioned in Note 257. Details of this grand building have been previously treated in various preceding Chapters, hence only some brief data in architectural history will be given in this connection.

The Abbey was founded by Gian Galeazzo Visconti, Count of Virtu, first Duke of Milan. The corner stone was laid on Sept. 8, 1396; Galeazzo died 6 years later (1402). Begun in Gothic, then carried on further in the new style, it was essentially completed in the year 1542. The first architect still remains unknown; the Germans Enrico Gamodia and Marco da Campione are named. But the architectural functions of Giovanni Antonio

Amadeo or Omadeo are assumed in the leadership of the works in the new style.

As further influential there are authentically mentioned:--

Benedetto Brioschi
Ettore d' Alba
Battista e Cesare da Sesto
Giacomo Nava
Agrate
Andrea Fresina
Christoforo Romani
Battista Gattoni
Antonio Tamaguini
Giacomo della Porta.

Fratelli Montegazza
Antonio da Locate
Francesco Piontello
Marco
Angelo Marini Siciliano
Christoforo Solari, detto il Gobbo
Agostino Busti detto il Bambaja

The chief building materials are white marble and granite, dark red and colored glazed bricks, the latter on the cornices, whose colored glazing is still well preserved today.

The stone sculptures of the cloisters for the period of 1450-1466 are divided by Meyer in to the following classes.[231]

1. Minor sculptures in the Campionese style.

2. Dry stonecutter's work in the Transition style by Filarete and Guinoforte Solari of Florence.

3. Minor sculptures in the Early Renaissance by Amadeo and Christoforo Manteguzza. The two last mentioned executed half the sculptures of the facade; in 1478, the others were transferred to Amadeo.

The shrines crowning the buttresses are likewise works of Amadeo in 1478, as well as the terra cotta in the small and the great cloisters.

322. Chapel Colleoni in Bergamo.

8. To master Giovanni Antonio Amedeo is likewise due the Chapel Colleoni in Bergamo, begun in 1470, which suffers somewhat by the variegation and overloading of the entrance facade. The surfaces of the facade are covered by small slabs of black, white, and red color, that are set diagonally and produce the well known shaded die pattern: the pilasters are enclosed by blackish-gray marble, the medallions likewise, while the sculptures themselves and the decorated panels are wrought from red Veronese marble. The little window pilasters of the upper story are entirely of white marble; for the little columns below

and the candelabras, the materials again alternate in black, white, and red colors, so that the two outermost are black, the two next are white, and the two innermost are red; gilding must also have originally contributed to enrich them. Very charming are the sculptured works in the interior, and first is the entirely naturalistic vine ornamentation on the pilasters at the choir.

A very interesting and earnest work in the Chapel is likewise the Tomb of Medea, the daughter of Bartolommeo Colleoni, in white marble, on which the architect has immortalized himself by the inscription:--

"Jovanes . Antonius . DE . AMADEIS . fecit . hoc . opus."

Thus we read here according to the writing, "Amadeo" instead of "Omadeo."

328. Cathedral in Sebenico.

9. According to the "Cronaca della Casa Veranzio", the Cathedral in Sebenico was commenced on April 9, 1431, in the Gothic style as a 3-aisled basilica with transepts, a dome over the intersection and 3 choir niches. The architect is named as the Venetian Antonio, formerly Pietro Paolo, who according to Mothes[267] belonged to the artist family of Massegne, and who was already occupied on the Church dei Frari in Venice. But already after 10 years, this master was sent away "on account of faults and defects that he had made on the building," and a master "Georgius Mathei Dalmaticus" was chosen, who is also called master Orsini da Monterotondo, also otherwise known by works in Ancona, Spalato, and Ragusa, in which last place he conducted the work of restoring the Palace dei Rettori according to Michelozzo's advice. He was first employed for six years by the contract of June 22, 1441, but this was extended 10 years further in 1446. In 1470, we find master Orsini in Rome for a short time; he died in Sebenico in 1475. He completed during this period the Gothic portion of the Cathedral and changed it into the system of the Early Renaissance, i.e.,
474 he finished the ground plan in its entire extent, the side aisles with the pointed arcades and vaults, as well as the remarkable roof and the entire structure of the choir.

Note 267. In Geschichte der Baukunst und Bildhauerei Venedigs. Leipzig. 1859. Vol. 1, p. 243.

On the angle pier beside the Northern apse is a stone, that bears in Gothic small letters the words:--

"Hoc . opus . cu . arum . fecit . magister . Georgius . mathei . dalmaticus."

The clearstory, transepts, and dome were built after the death of Orsini.

After him came the third architect, Nicolo di Giovanni Fierontino, known by works in Trau and Spalato. He was employed on June 1, 1477, at a yearly salary of 120 golden ducats, which he also received until 1517. Under him were the transepts with the high choir, the galleries, and the stone roofs over the apses were completed. In his place then came Bartolomeo, formerly Giacomo da Mestre; he was followed by his son Giacomo, who was engaged till 1535. A Giovanni Masticerich, "lapicida" from Zara, put the last touches on the building, whose completion is stated by the inscription in the interior:--

"Praesule sub Lucio, Critto Praetore Peractum tercentum et septem lustris addentibus annum."

Hence 307 lustres (at 5 years each) and one additional year gives 1536; the building period therefore lasted 114 years.

The material is a white and exceedingly fine limestone, which is quarried in the vicinity, the workmanship is perfected, and the treatment of forms is equally so. The details of the construction have already been described, and a representation of the entire building is given in Figs. 481, 482. The little baptismal chapel is to be especially mentioned, its ceiling consisting of a single, richly ornamented block of stone.

The beautiful structure showed in the beginning of the last century great injuries, and it was therefore subjected to a thorough restoration. The entire dome was then taken down and rebuilt anew: then were the stone roofs of the aisles renewed, as well as four chapels and a column in the arcades, and a large number of pieces of the cornice were renewed. The Austrian government skilfully carried on this work until 1854 in the most complete manner.[268]

Note 268. See Graus, J. Der Dom zu Sebenico. Kirchenschmuck. Jahrgang 27 (1866), Nos. 1 to 5.

824. Churches of Alberti.

10. Alberti erected the marble temple of S. Francesco in Rimini, whose architectural elements are taken from the antique, as a rebuilding of a Gothic Franciscan Church, whose external walls and pointed windows were spared by him. Independently of the old building, he covered the entire original s structure with a marble enclosure, permitted the pointed windows of the side chapels to remain in the interior and merely changed their details. He extended along the longer sides of the exterior a round-arched arcade, in whose niches were built sarcophaguses. He made the front facade entirely free without attention to the earlier one, only retaining the clear dimensions of the entrance doorway. In the frieze over the lower colonnade stands the inscription:--

"Sigismundus Pandulfus Malatesta Pan. V. E. Gratiae. 1450." The facade remains unfinished. How this must have been intended is given by coins of Matteo de' Pasti, which likewise show 475 that a dome was planned for the building, for which the corner stone of the new portion was laid on October 31, 1446, under the benediction of the Bishop of Rimini Bartolomeo Malatesta. A white Istrian limestone served as the building material; reddish Veronese marble was employed for the balustrade in the interior, but the tympanum of the portal was composed of marbles of different colors.

Alberti furnished a model, which he supplemented by drawings; he had nothing to do with the execution.

The development of the interior leaves something to be desired; the subdivision of the walls over the impost cap by closely set pilasters is not a very talented adjunct; the limestone work exhibits the idea peculiar to the Early Renaissance, of the addition of coloring with heraldic blue and gold, as on the Palace in Urbino, on various Tombs in Rome (Araceli), and other places.

The bases of the chapel piers are of peculiar form, where instead of the lions usual elsewhere (Colleoni Monument in Bergamo, Monument of Giovanni Borromeo on Isola Bella), pairs of elephants in dark marble and woven baskets of flowers with cupids are chosen.

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Note 269. Further in Yriarte, C. Rimini. Paris. 1882. Chap. 10. p. 179-252; also The Builder, 1883, Jan. 13, p. 40-42; also 1901, May 25. p. 5~~4~~1; especially Zeits. f. Bauw. 1893. p.8, 205.

11. S. Andrea in Mantua is a single-aisled basilica with side chapels along nave and transepts, dome over the intersection and semicircular choir apse (Fig. 470) with a rectangular projection, emphasising in general the Latin cross.

Alberti was in Mantua after 1459, and after Cardinal Francesco Gonzaga, son of Duke Lodovico, had decided on the new building, he was entrusted in 1472 with its design and supervision. The execution was cared for by Luca Fancelli. A beginning was made in February of the year mentioned by tearing down the old Church S. Andrea, but the bell-tower finished in 1412 was permitted to remain. The previously mentioned superintendent Fancelli received in April, 1472, the final drawings of Alberti, who died in Rome the same year at the age of 68 years. The building was carried on slowly, and Fancelli left Mantua in 1487 on account of lack of work. The work on the building was again resumed only in 1490 and about 1500, the vestibule and the longitudinal aisle were completed; then the building remained quiet from 1550, and it was only in 1597, that the transepts and choir were commenced with abundant means, only at the express command of the Duke, and after the drawings of Alberti, which were thus preserved 100 years later.

Viani from Cremona probably completed the transepts and choir about the year 1600. Then the building again rested until 1696. As at the erection of the Cathedral in Como, the feeling for the delicate forms of the Early Renaissance was lost meanwhile: that previously done was little esteemed, and the originally planned dome of Alberti was also no longer desired. The architect Torre was called from Bologna, who desired to rebuild everything in the Barocco style. But a favoring fate permitted a delay from 1710 to 1731; but we then learn of the following year, that after the still lacking two arches at the intersection and the substructure of the dome were undertaken on October 15, 1715, Cavaliere Filippo Juvara from Messina, Architect of his Majesty Sarda, was entrusted with the comple-

completion of the building. In 1738 the pendentives and the great main cornice beneath the drum were finished, and the dome was roughly completed in 1763 and covered in 1782.

Disintegration of some marble members and of the stucco of the Western vestibule made necessary a restoration in the year 1882, whereby the remains of the then preserved facade paintings of Mantegna and his sons were unfortunately destroyed. The stucco was removed and freshly replaced, the painted coffers being executed in sculpture. The marble architraves of the smaller doors and the plinths of the four great pilasters were renewed in marble, as well as the bases, which were previously of terra cotta. The capitals of the great pilasters and those of the internal angles, which were modelled in lime mortar, were likewise replaced by those of marble: the internal walls were also covered with marble to the height of 5.41 ft., and lastly all the remainder was coated with light gray and yellowish colors in milk, concealing likewise the members of red terra cotta, but which now (October, 1901) again appear in their original color. These embellishments were continued till the year 1876, and now the guide books speak of a white marble facade! What a different effect must the building have had in genuine materials by Alberti and and with the decoration by the pictures of Mantegna!

The details of the older portions of the Church agree with those of S. Francesco in Rimini and also with those of Palace Rucellai in Florence, so that no doubt can exist concerning Alberti's participation in this. It may be added in reference to the construction, that in the execution all visible anchoring with iron is avoided, and that the roof covering of tiles rests directly on the plane surfaces of the great tunnel vaults, entirely according to the antique custom. Walls and vaults are built of bricks and all repeated members, cornices, panels of pilasters, are of plainly shaped excellent terra cotta. The plain surfaces are plastered, the capitals of the internal columns, the coffers, the mouldings of the great dome, and the ribs of the vaults, are of stucco. The interior is richly painted and still further heightened by gilding.[270]

Note 270. See the thorough and carefully written history

of the building by F. Ritscher in Zeits. f. Bauw. 1899. p.1, 181.

825. Churches of Brunellesco.

12. Filippo Brunellesco received in 1433 the commission for building anew S. Spirito in Florence; but this soon met with the facte of all heretofore treated; it came to a stand. At the death of the master, the ground-plan had been built in its main lines, and the model of the building had been prepared. Antonio Manetti was entrusted with the further erection of the building, so that the chief building period probably fell in the time from 1470 to 1480, and the Church might indeed be consecrated in 1481, but it was not yet complete in all its parts. 494 Besides Manetti, Milanesi also names a Giovanni Mariano, called Lo Scorbacchia, who was employed as foreman mason on the building from 1475 to 1490. The bell tower was begun by Baccio d' Agnolo (d. 1543) and completed after his design under Cosimo I.

Brunellesco is responsible for the plan, the nave basilica of cross-shaped plan with the emphasizing of the intersection and the duplex ending of the cross, but he is not so for all details. The middle aisle has a horizontal wooden ceiling; the side aisles are spanned by spherical vaults and the chapels are covered by niche vaults. The dome over the intersection has a low drum without windows, over which rises the so-called "melon vault" with ribs, small windows and a lantern at the apex. Beneath the dome stands the high altar, as in S. M. del Fiore at Florence and in S. Pietro's Cathedral at Rome.

The narrow windows of the side chapels, which are half or entirely walled up on account of altars, exhibit in horizontal section a treatment harmonizing with their semicircular form, from which the originally semicircular external form of the chapel walls may also be deduced, and these show that the straight course of the walls there, is a later addition. There now appear triangular spaces in the masonry between the walls of the chapels. What the master intended is not known,[271] yet it can scarcely be what now exists there.

Note 271. An allied design occurs on this side of the Alps in the Church of S. Michael in Munich: the architect has there attempted a solution, by which the internal form of the chapels

is also shown externally and yet a direct continuation of the plinth and drip course is possible.(Fig. 471). The attempt well merits mention, but it is scarcely Italian.

In the interior, the columns are monolithic and are polished, like the entire internal work in cut stone, set with tolerably fine joints in white lime mortar. The treatment of the angle piers at the intersection, that form the supports for the four arches of the middle aisle and the dome, is borrowed from the precedents in S. M. Novella and S. Croce in Florence. Adjoining the high piers of the middle aisle are the lower ones of the side aisles, so that the arches of the latter fall considerably lower than those of the middle aisle; they therefore have to sustain the thrust of an arch and vault from two sides with another opposed to the former, though at a different height.

In S. M. Novella, the square nucleus of the pier has a side of 3.44 ft. with a projection of 1.15 ft. on two sides, and on two others are an engaged half column with two mouldings. The pier at the intersection in S. Croce is octagonal with a diameter of 4.92 ft. In both churches, the first of which is vaulted, no deformations are to be found, or at least none worthy of mention, while the same arrangement in Venice (see Fig. 21a), continuous cracks may be traced. The nucleus form in S. Spirito has only a side of 3.60 ft. with projecting half columns on two sides, the different pieces being mostly executed as through stones. The vaults are constructed without visible anchoring; but all the four angle piers and the adjoining arches are therefore accordingly much deformed. All vaults of the side aisles likewise show larger diagonal cracks, frequently beside each other. Many injuries may be referred to the fact, that the arches rest on one side on masonry with many joints, on the other upon ashlars with few joints; both supports must settle unequally and the consequences thereof be found in the arches. Thus the deformations in the arches of the ambulatory are very great, especially on the right of the high altar, and the dome also exhibits small cracks in the masonry of the drum, that extend to the arches.

13. S. Lorenzo in Florence was begun in the first decades

of the 15 th century as a new structure of the Tuscan mediaeval type. When the work was entrusted to him, Brunellesco found the ground-plan existing in the foundations of the transepts and choir; the nave basilica and transepts were therefore not exclusively the product of his own free will. Especially as concerning the form of the transverse aisle, S. Croce and S. M. Novella in Florence served as models; but the nave was created entirely anew by the master.

Antonio Manetti also constructed this building and brought the interior to an end in 1460; from him likewise comes the existing form of the dome over the intersection, since the transverse structure and the intersection were still unfinished at Brunellesco's death. He also left the pediment facade incomplete, which he had designed to be simple.

As in S. Spirito, the middle aisle is furnished with a horizontal wooden ceiling, now colored white and gold, the side aisles are covered by spherical vaults, the niches of the chapels by tunnel vaults, and the intersection by a hemisphere without a drum, but with a lantern at the apex.

The four supporting intersection piers have nucleuses with a side of out 2.95 ft. with a projection of 0.66 ft. and 1.12 to 1.67 ft. in height of the courses of masonry. The stone-cutter's work is also polished here; it is now unfortunately coated with a light-gray wash. The columns are monolithic and the vaults are executed without visible anchoring. In the arches of the side aisles resting on the intersection piers, the keystones are not all in order; all compartments of the vaults of the side aisles are frequently cracked diagonally, like those in S. Spirito. The material, here as there, is Tuscan light-grayish-green sandstone; the surfaces of the walls and vaults are plastered white.

326. Churches of Bramante.

14. At S. Satiro in Milan, begun by Guinoforte Solari, the continuation of the work is sometimes ascribed to Bramante, sometimes to Bramantino, but the sacristy is certainly due to the great native of Urbino, as well as the remainder of the building.

What now appears is a 3-aisled pier basilica with a trans-

transverse aisle, dome over the intersection, and a seeming choir. The transverse and middle aisles are spanned by coffered tunnel vaults: these are subdivided into bays by strengthening ribs corresponding to the pilasters of the piers beneath. The dome has a low drum without lights, its internal hemispherical surface being adorned by coffers; a lantern crowns the apex; the enclosing walls rise above the springing and support a low pyramidal roof.

410 The side aisles are covered by cross vaults and extend along only one side of the transverse aisle, since their extension on the other side was impossible on account of the limits of the site. This limitation also led to the erection of the apparent choir, whose effect does not fail, so long as one moves along the middle axis of the building and his eye is not sensitive to a defect in the lines of the internal cornice, this makes itself felt the more unpleasantly, the more one leaves the middle axis or approaches the choir. Seen from the transverse aisle, the whole becomes laughable and is only "distinguished" for the ignorant; the beautiful appearance is not preserved, and what was intended is not attained. The building period lasted till 1495; the consecration is given as finished in 1528.[272]

Note 272. A good representation is found in Cassina, A. -- For the sacristy in S. Satiro and the choir of S. M. della Grazie in Milan, see Art. 532.

15. Church S. Casa in Loreto comes into consideration here, not only since Bramante is mentioned in reference to the improvements in the dome, but still more because he was the creator of that wonderful marble covering of the House of the Virgin beneath the dome, which Andrea Sansovino (1513-29), Girolamo Lombardi, Tribolo, Bandinelli, and others, decorated by statues and reliefs, and Girolamo Lombardi furnished with bronze doors.[273]

Note 273. See a description of this architectural work in Zeits. f. Bild. Kunst. 1871. p. 160. -- The sketch plan there given is entirely incorrect, for example, the longitudinal aisle being one bay too short.

327. Churches in Milan, Genoa, Florence, and Venice.

16. Of Milanese churches, there are to be mentioned in accordance with the period of their origination:--

S. M. presso S. Celso (1490), built by Giovanni Dolcebuono, with beautiful fore-court and rich facade by Alberti. A 3-aisled pier basilica with 9 external sides or with 5 square and 4 triangular chapels. The choir itself forms a half octagon in its ground-plan.[274]

Note 274. See the publication in Cassina. Pls. 19-24, in whose text Bramante is also designated as creator of the vestibule.

17. S. Vittore, on account of its splendid Barocco internal decoration by Alessi.(1560).

18. S. Fedele, built after Pellegrini's plan (1569) as a Jesuit church, completed by Martino Bassi.[275]

Note 275. Published by the same.

19. There is to be mentioned in Genoa the 3-aisled basilica of S. Annunziata (1587), built by Giacomo della Porta, on account of its extremely luxuriant interior with works in red marble inserted in the walls.

20. The facade of S. Trinita in Florence by Buontalenti.

21. S. Salvatore in Venice on account of its interesting Barocco facade of the year 1663, a building begun by Giorgio Spavento and completed by Tullio Lombardo in 1534.

22. Of Palladio's churches in Venice are to be mentioned:--

S. Giorgio Maggiore, begun in 1560, with the facade completed by Scamozzi in 1575, also;

23. Church S. Redentore with an interior in a single aisle, built in 1576.

328. Roman Barocco Churches.

Of Roman churches of the Late period may be noted:--

24. Church Gesu, the chief church of the Jesuits, built at the order of Cardinal Farnese in 1568-75 by Vignola and Giacomo della Porta, exhibiting one of the most splendid and richest interiors of Rome. Its nave was furnished with costly marble paneling in 1860 by Prince Torlonia.

25. S. Andrea della Valle, begun in 1591 by P. Olivieri and finished by Carlo Maderna, with a rich facade after the design

of Carlo Reinaldi (1665). Especially worthy of consideration on account of the bronze copies of the Pieta, of the Lea, and the Rachel of Michelangelo, and of the charming bronze candelabra in Chapel Strozzi.

26. S. Ignazio, begun at the cost of Cardinal Ludovisi and completed in 1675; planned by Father Gussi with a facade by Algardi.

The interior of the building is famous for the paintings of Father Pozzo with their singular perspective, where painted architecture seeks to surpass the monumental. We see the compositions executed with extreme and unexcelled skilfulness and a distinguished sense of color, -- but it always remains fatal to them, that they have a correct effect only from a single point, which is therefore prudently marked by a circular marble disk in the middle of the principal aisle. Extending above it, the beautiful sham ends, and the undertaking partakes of the fate of all similar perspective follies. A pity for so much talent and ability misplaced!

Chapter 33. Central Designs.

"The central building is the last in the domain of absolute architectural forms as the Greek temple is the first. Its possibilities have long been unexhausted, and there may be intervening periods like the 19 th century (also the beginning of the 20 th ?), which must again absorb the lessons of the 18 th, -- this great problem will ever appear anew, wherein the attempts of the Renaissance will enter as indispensable preliminary steps, splendid in their right. -- But the Renaissance has indeed developed the highest church architectural form, the central building, to nearly absolute perfection, superior to everything Gothic, and has left it as a legacy to a future "religiosity."

Burckhardt, J. Geschichte der Renaissance. p. 97.
Stuttgart. 1878.

329. Central Buildings.

Important for the acceptance of the central building as an ecclesiastical form of structure was in Italy the existence of so many antique circular and polygonal edifices, and also the

constant sympathy with the Orient, which found sufficient incitement in S. Sophia, to mention but one example of high rank. The "mythical fame" enjoyed by the Pantheon in Rome and by S. Lorenzo in Milan, the admiration of other and better preserved central structures of circular or polygonal form, like the mighty domes of the Baths in Rome (Baths of Caracalla, the so-called Minerva Medica) and near Naples (Baiae), as well as the Early Christian buildings in Ravenna, kept alive first in Roman architecture the use of the central building, caused experiments in the period of the Protorenaissance ((Baptistery in Florence), and then in the Gothic middle ages, even if these remained only on paper or in the model (Florence, Bologna, Pavia, Loreto); their construction was then taken up by the increasing Renaissance.

The custom of regarding the baptisteries as central buildings and of producing this architectural expression further contributed to not permitting the idea to be lost in the circular structures, whereby likewise the art of vaulting large interiors did not fall into oblivion; for no central building was to be conceived without a vaulted ceiling.

The accenting of the intersection of the mediaeval cathedral in Italy, when accepting the Latin cross as the ground form, by a dome had previously been frequently conceived; but to consider and to execute this as a dominating entirety, as an architectural focus of an architectural design remains the undisputed merit of oriental Christian architecture and of its progressive successor, the Italian Renaissance!

"Absolute unity and symmetry, perfectly beautiful subdivision and enhancement of the interior, harmonious development in both exterior and interior without useless facades and the noblest arrangement of the lighting," -- these are the characteristics and peculiarities of these domical structures, which cannot be more strikingly expressed in words, than Burckhardt has already done.

330. Ground Form.

The arrangement for a circular or polygonal interior remains the simplest solution for the structure, but if the altar be not placed at the centre of the plan, its unity is disturbed.

when a special addition must be made for the altar. (Compare Madonna di Campagna near Verona, S. Maria at Busto Arfizio, Umilta in Pistoja, S. Sebastiano in Milan).

These inconveniences and doubts disappear with the adoption of the Greek cross plan with four arms of equal length as the ground form, which consequently became the prevailing one.

But the great structural undertakings in dome construction do not commence with the realization of the ideal; these are works of improvement in a new form of those taken as a basis by others; they are works preliminary to the future, but not yet existing expressions of power.

331. Beginnings.

On sacristies and chapels, the early Renaissance made its first independent and original attempts in actual buildings, structures of small volume and little dimensions, but therefore the more worthy of appreciation and more beautiful in details, in their design and execution.

Here is to be counted the Sacristy of S. Spirito at Florence with octagonal ground-plan: two tiers of pilasters above each other as a decoration of the wall surfaces, where the pilasters are set back from the angles (leaving free the angles of the polygon), over it being a cloister vault with lunettes and a small lantern extending to the attic. Giuliano da Sangallo is given as the maker of the plan and model, Cronaca as the architect, who completed the building, and Sansovino as the master for the beautiful details.

Further the Sacristy of S. Lorenzo there, which came from the hand of Brunellesco about 70 years earlier, the so-called Sacristy Vecchia (1425), that possesses a so-called melon vault with round windows and is without an intervening drum, above pendentives and a square ground-plan.

More imposingly treated is the attempt in the Pazzi Chapel in Florence, of which Brunellesco was likewise the originator. (1420). Not a central structure in the proper meaning of the term, the Chapel exhibits an oblong ground-plan with vestibule and choir, where the principal axis is not placed lengthwise, but according to the narrower side of the building, the liturgic axis thus lying in the direction of the latter. The arch-

482 architectural subdivision of the ceiling justifies this procedure, the rectangular interior being subdivided into three parts, being indeed separated by two semicircular transverse arches into a square central and two narrow side bays.

483 The two latter are executed as tunnel vaults; the central bay is a melon vault on pendentives, with ribs and round windows, crowned at top by a lantern. Thus the dome dominates the entire design; the tunnel vaults on the right and left are its accessories, and between them and on the middle axis of the dome opens the choir, square in plan, which is again spanned by a spherical vault. Entrance on the liturgic axis is permitted by the beautiful great entrance doorway with its precious carved leaves, at the rear of the charming vaulted portico, whose middle bay is likewise distinguished by a dome, whose ornamentation by colored majolica work from the atelier of Robbia has already been mentioned.(Art. 97).

As a work of Brunellesco may also be mentioned the truly central design of S. M. degli Angeli in Florence (1451), where the span of the dome was planned to be 51.82 ft., with the adoption of a ground-plan internally octagonal and externally 16-sided.

The ground form of the Greek cross is found in the purest way in the construction of S. M. delle Carceri in Prato by Giuliano da Sangallo(1485). Surrounded by four tunnel vaults of equal dimensions, four transverse arches receive on pendentives a closed drum subdivided in panels and surrounded by a balustrade, above which rises a melon vault with ribs and round windows, and with a lantern at its apex. The drum appears externally but not the vaulted form of the dome itself, which enjoys yet the addition of the low pyramidal roof of Upper Italy.(Fig. 472). 277 This is likewise the case with the dome roof of Chapel Pazzi at Florence, and in curved form on S. Maria at Busto Arfizio.(Fig. 184).

Note 276. Reproduction from Oettingen, W. von. Antonio Averlino Filarete's Tractat über die Baukunst. Vienna. 1890. p. 465. Fig. 7.

Note 277. Also see Zeits. f. Bauw. 1866. Pls. 62, 63.

The domical roof (protecting roof) in vaulted form appears in early designs only in those of the dome of S. Francesco in

Rimini designed by L. B. Alberti and in those of the Cathedral for Bergamo by Filarete (Fig. 473).

484 382. Later Buildings.

The pure Greek cross form in the interior, though not on the exterior, is shown by the beautiful central Church of Madonna di S. Biagio in Montepulciano, which possesses the boldly subdivided bell towers at right and left of the front arm of the cross, and not those like minarets as in the drawing of Filarete, -- a work of the elder Antonio da Sangallo (1518-87), and one of the most perfect central church buildings of the High Renaissance (Fig. 474). Not only does the drum with windows appear externally, but likewise the calotte form of the dome with the lantern. The high cylindrical drum is subdivided by closely set Corinthian pilasters, that have a continuation in the form of plain ribs on the vaulted surface of the roof. The window openings in the drum are made in the interior of the same height as on the exterior; the internal main cornice of the dome also is below the external one. Yet the internal and external window sills are connected together by splays sloping inward, which makes possible for the observer a view of the entire light opening, but which cannot strictly be termed an organic solution. The same arrangement with the sloping splays between the internal and external windows of the dome has likewise been adopted by the architect of S. Fedele in Milan.

Here should also be mentioned S. Giovanni Crisostomo (1483) by Moro Lombardo in Venice, as well as the "extravagant masterpiece" of S. M. dei Miracoli in Brescia, with its alternation of great and small domes and little tunnel vaults, -- with 4 piers in the square ground-plan and an elongated choir addition. (Compare Fig. 108).

Another group of central structures of medium size is formed by the churches of Upper Italy executed by Bramante and contemporary masters, a great number of which have been made known by Strack in his work mentioned below.[278] They are designed internally sometimes circular, sometimes polygonal, with domes resting on pendentives or spanned by cloister vaults, but all are provided with a crowning lantern.

Note 278. Strack, H. Die Central- und Kuppelkirchen der Renaissance in Italien. Berlin. 1882.

As a first example may here be named the choir building of S. M. delle Grazie in Milan, square in ground plan, with a drum animated by small double windows and round windows in the
485 domical vaulting, that shows a span of 59.04 ft. (Fig. 475).
486 Then the externally circular and internally octagonal domed structure of S. M. della Croce near Crema by Battagli (1490); further the dome of the choir of S. Maria near Saronno on pendentives over a square interior, at first with an internally 12-sided drum animated by niches, above which are round-arched, lunettes with small round windows, over these being the hemispherical plain and painted dome (Fig. 477). Likewise must be mentioned the Incoronata of Lodi (Fig. 478), a structure constructed internally and externally octagonal, covered by a cloister vault and crowned by a lantern, furnished with a triple-arched vestibule between two bell towers, one of which is only carried to one-third its intended height. Further to be named are:-- S. Maria at Busto Arfizio, S. M. Coronata at Pavia, and especially the beautiful sacristy building of S. Satiro in Milan with its octagonal ground form, four semicircular niches, upper arcade, cloister vaults with round windows in the surfaces of the vaults and a taller lantern at the ap-
487 ex, -- a decorative masterpiece by Bramante with terra cotta busts and reliefs by Caradosso (Fig. 479: decorative treatment of one side of the octagon). The interior of this little building appears to have met with the fate of S. Andrea in Mantua; it is now coated with light yellow, bronze-green, and gray washes, but it was originally left in the red color of the terra cottas, perhaps with the use of blue color and gilding.

These domed structures likewise do not show the vaulting externally: this is concealed behind walls extended higher, mostly surrounded and effectively animated by galleries in mediaeval form. (See Figs 475-478).

Plain and simple external surfaces are shown by the high enclosing walls of the charming creation of Sanmicheli, the Chapel Pellegrini in S. Bernardino at Verona, where the dome

likewise again disappears beneath the protecting hip roof, but whereby the lantern appears so much more effectively.((Fig. 480).

A true calotte dome with lantern and a cylinder admitting light appears in the Madonna della Consolazione at Todi. The plan shows a square central space with a semicircular choir ending and 3 polygonal apses, thus being the most strongly expressed central design. But the form of the vault of the dome appears on the exterior; likewise at the four apses are the quarter-spherical vaults externally shown; they abut against the square substructure of the main dome, which was much strengthened on account of the thrust of the walls of the apses at its angles. A balustrade extends around and forms the proper termination of this part of the building, above which rises the dome. The forms of the details of the lower parts of the building and of the interior up to the dome indicate the Early Renaissance; those of the dome are on the contrary somewhat Baroque; but nevertheless the general effect is that of a single design, if one does not consider the building in detail and enters it uncritically.

It is popularly ascribed to Bramante; researches in the archives by Rossi do not prove this, for his name is not mentioned in the building records. The first notice of the building occurred in 1508, when on October 7, a payment was made to master Cola di Matteuci da Caprola, who is otherwise known as an architect of good repute and in good esteem. The work was in 1606 completed to the base of the dome, and in 1617 was the miracle-working image of the Madonna placed in the finish-
488 ed Church, -- after a building period lasting more than a hundred years. Many believe in the authorship of Bramante, in spite of the lack of all documentary proof for their opinion (just as for the Cathedral in Como); Rossi flatly differs for the reasons given. The negative result of the investigations does not permit an unassailable conclusion. It remains primarily a “matter of belief”, which of the two is to be held as the architect of the Church.[280]

Note 280. See Laspeyres. Plates 68, 69. -- Likewise the beautiful domed space near the transverse aisle and choir of Church S. M. della Grazie in Milan with the rich terra cotta

ornamentation is ascribed to Bramante. Because of the recent-revived contention concerning the authorship of Bramante for the building of the Cancellaria and other palaces in Rome, which Count Domenico Gnoli introduced and continued together with Ettore Bernich, like the consolatione at Todi, it must be left to individuals to take either side/ of the contest, that they prefer, since former investigations have led to no acceptable final result. When by these and without any compulsory documentary materials, there is elevated sometimes a miniature painter, Gaspare Romano, sometimes a Bastiano da Bologna, instead of Bramante, further evidence must still be awaited. And we question the basis of the contention; the well known great inscription in the frieze of the third story, and a smaller one found later over the middle window of the principal story, show the dates 1495 and 1489, while Vasari says, that Bramante firt came to Rome between 1499 and 1500, and that he only collaborated with other architects as an adviser. That Bramante had anything to do with the construction is made credible by Vasari; but that on this account he must have settled in Rome is in accordance with allied methods not entirely necessary; and if we assign the date of about 1500 to the change of residence, this is still no reason against an earlier occasional collaboration of the honored architect. Other things tend against the exclusion of Bramante in this case, whose statement would extend too far.(Compare Archivio Storico dell' Arte (Rome 1892): the Oct. and Dec. parts of Rassegna d' Arte for 1901, as well as the May part for 1902; further the views of Burckhardt in "Cicerone" (Basle edition, 1860); those of Letarouilly in the text volume of "Edifices de Rome moderne" (p. 219-220); Redtenbacher's in "Architektur der Italienischen Renaissance" (Frankfort. 1886) p. 180; von Geymüller's in the Dec. part of Rassegna d'Arte, also those of Gnoli in Revista d'Italia for April 15, 1898, as well as Fabriczi's in the Dec. part of Rassegna d'Arte for 1901).

It is to be regarded as a malicious fate, that to the great Bramante are ascribed works in which he probably or actually had no part, but on the other hand it is to be lamented, that too few have been adjudged to L. B. Alberti, because he once

wrote:-- "L'architetto per conservare riputazione, deve dare i soli modell. -- facendoli eseguire da altri," on the ground of which utterance, merely the name of the builder has been connected with many works, and not always that of the talented designer.

489 Allied in the arrangement of the plan is Madonna della Steccata in Parma (Fig. 483; from Strack), but which, instead of an increased thickness of the walls at the recessed angles, shows chapels with plans externally square and internally octagonal, that extend up to the height of the semicircular apses, so that the substructure of the dome rises above the apses in the form of a Greek cross. The latter and the dome itself show without deception the same form of the vault as at Todi; by the use of the colossal order on the exterior and the interior, the architectural effect is improved; but the main dome with its rather insignificant colonnade around the drum seems too low and this permits the general effect to fall below that of Todi.

The external surfaces of the walls of the building are plastered; only the window enclosures and the cornices consist of cut stone, whereby it loses in appearance and in monumental effect. According to Vasari, the Church was built from drawings and plans of Bramante, "as men say." Other traditions state that the building was begun in 1521 (thus 7 years after Bramante's death) after drawings by the architect Francesco Zaccagni da Torrechiara, and the building of the Church was afterwards completed only in the year 1515. The consecration by the Bishop of Parma followed in 1539; the choir was enlarged in 1680.[281]

Note 281. According to Strack. p. 9 et seq.

The ground plan of the Church Madonna di Campagna at Piacenza exhibits something in its scheme common with that of the Steccata; for here likewise with the adoption of the Greek
490 cross, the reentrant angles have chapels; these are not enclosed, but in a bolder and freer way are open towards the central space, so that four angle piers receive the dome. The four apses end in rectangular form; the angle chapels extend to the height of the arms of the cross, terminating in small

octagonal structures. The arms of the cross and the dome show nothing of the form of the vault; they are concealed beneath low gable and hip roofs. The substructure of the dome appears externally in two stories and surrounded by galleries; windows are formed in the lower one to admit light into the interior; the upper one serves as a gallery merely to animate the exterior and to make its appearance richer.

The Church was built in brickwork between 1522 and 1528 or 1582; columns and cornices are made of cut stone. Bramante must here likewise give his name as master, but this is not proved, though no other master is mentioned in his place.

On the contrary, Bramante's authorship is guanteed for the very smallest central building, the so-called Tempietto, which Ferdinand IV of Spain and his consort Isabella caused to be built in 1502 in the court of the Monastery of S. Pietro at Rome. Of circular ground plan with a colonnade of 16 granite Doric columns, that support an entablature with triglyph frieze and a balustrade, the dome rises in a beautiful and pure form without any other protecting roof, above a drum animated by shell niches and rectangular windows. The crowning termination is formed by an ornament composed of arms, a sphere and a cross, without providing for any lighting at the apex.[282]

Note 282. See Letarcuilly. Vol. 8. Plate 528.

Bramante's pupil Vittori was under the influence of Sangallo or of Cronaca during the building of the Umilta in Pistoja, which Vasari completed internally at least, though not very happily. The pilasters are there set back from the angles of the octagon, as on the Sacristy of S. Spirito in Florence.[283]

Note 283. On the architectural history and the construction of the domical structure, see Durm, J. Grosskonstruktionen der Italienischen Renaissance; Kuppel der Maria dell' Umilta in Pistoja. Zeits.f.Bauw. 1902. p. 18.

Instead of this idea or that of the broken pilaster in the angle, in other places, for example in a chapel in S. Andrea in Mantua, columns are set in the angles in a very effective way, --(Figs. 482, 484), -- an antique (Villa Hadriana near Tivoli), and likewise a mediaeval motive. But this offered

solution stops above the main cornice, where might be expected the continuation or suggestion of the columns towards the panels of the vault. The plain bands on the groins of the vault do not continue the lower accenting of the angles in a natural way to the apex. But also peculiar here is the arrangement of horizontal rectangular windows at the base of the dome and the-
491 ir intersection with the surfaces of the vault. The master desired, like Giulio Romano on the portico of Palace del Te, to avoid intersecting compartments, and he rested the vaults on a projecting band supported by consoles. (Fig. 481, A and B).

The subdivision of the walls appears better, as well as the solution at the angles of the polygonal apses on the Cathedral at Como. Both on the wooden model of Rodari (Fig. 468) as well as for the actual construction (Fig. 469), there is an endeavor for a bold continuation of the angle columns in the angle ribs.

Besides the already mentioned little Chapel Pellegrini, yet
492 others of the master Sanmicheli among the central and domical structures of Upper Italy play a part, like the circular Church Madonna di Campagna near Verona (1559) and the domes of S. Giorgio in Braida at Verona.

For spaciousness, as one of the most considerable undertakings in the domain of domical architecture should be mentioned the octagonal dome of the Cathedral in Montefiascone with approximately 82 ft. span. According to Dianoux,[284] this dome was constructed of brickwork, over which was to be placed a second one covered with plates of copper and lead. Until the construction of this, the building was furnshed with a temporary roof, which burned and destroyed the building. The restoration came into the hands of Fontana, who executed this in the fashion of his time. The thickness of the wall of the drum is 11.15 ft.; the dome is 59.04 ft. high and at a height of 25.58 ft. above its base, two iron bands are built in,
493 whose junctions appear on the surface of the dome. At least the angles of the octagonal sides are held by these and are thus prevented from bending outwards.

Note 284. See Dianoux. p. 129, 130; plates 94, 97.

Solari's domed structure of S. M. della Passione in Milan

should likewise find mention here.

From the octagonal intersection at its junction with the transverse aisle and the choir is developed a central design of the richest kind in the Cathedral of Pavia, authentically built by Cristoforo de' Rocchi, who had the control of the building in his hands from the day of laying the corner-stone (June 29, 1488) until his death in 1497. His successor was the great Omadeo or Amadeo, whom we have already known in Bergamo and in the building of the Certosa near Pavia. The wooden model of Rocchi for the structure has been preserved; Fig. 485 gives an idea of what was intended, but never completed. The grandly conceived pyramidal superstructure indeed permits the overlooking of objections, which may indeed be justly made.

A central structure, pure and free from all that could weaken its individuality, is S. M. di Carignano in Genoa, built by Alessi in 1552, represented in Fig. 486; the motive of S. Pietro in rome is expressed therein "in an entirely free and novel arrangement," with high beauty of space in the interior. A great main dome dominates the design with square ground plan and with 4 small subordinate domes, of which merely the lanterns harmonize in the general grouping. The design was originally to have been flanked by 4 towers, but only two of these were erected in a changed form.[285]

Note 285. Compare Durm, J. Kuppel der S. M. da Carignano. Zeits. f. Bauw. 1902. p. 161.

333. S. Pietro in Rome.

But the greatest work in this domain of church architecture was performed by the two best Renaissance masters, -- Bramante and Michelangelo, -- in their designs for the Cathedral of S. Pietro in Rome (Fig. 487). What Bramante desired is shown to us by his first ground plan in Fig. 488, and what Michelangelo wished, by the ground plan in Fig. 489. While Bramante indeed loses in part in details, Michelangelo expresses his ideas clearly and simply by firm, thoughtful, assured strokes, and he was more fortunate than most mortals, in that what he planned was also executed, even if he could not see it completed. A representation of the effect of the work as a central building comprising the choir and two arms of the cross is given by Fig. 490; great and peaceful in its lines and amazing in its

appearance, the dome showing the most beautiful outlines in the world! It stood effectively for 40 years as a central structure in general; for only in 1606 did Pope Paul V cause the erection of the existing unfortunate nave, -- more unfortunate for the exterior than the interior, which can never lose its noble effect, even in the elongated ground plan. /

To include a history of the building of S. Pietro within the limits afforded by this volume is impossible; reference must here be made to the numerous and extensive publications of earlier times by Costaguti, Ferraboschi, Fontana, Roccu, and whatever they may all be named; then to the greater and later works of Simil (Le Vatican) and of H. von Geymüller (Die ursprungliche Entwürfe für St. Peter in Rome), the researches of Jovanovits, Garnier, and of many others. For the structural portion see the Essays of Poleni, as well as of the author, "Zwei Grosskonstruktionen der Renaissance."(Zeits. f. Bauw. 1887, p. 481). But we especially recommend every visitor of the eternal city to view the large wooden models of the different architects, preserved in S. Pietro. Permission for this is given readily by the Majordomo S. R. d. P. to professional men; acces to the models is from the staircase leading to the dome.

Note 286. Fig. 489 is reproduced from Hauser. p. 43, 44.

At the age of 72, Michelangelo took charge of the building (1547) and retained this until his death (1564), "so that some scoundrels might not be pleased by his resignation, until the
495 building was entirely completed." Not only his fame but also his insight, the art feeling and elevated culture of his employers guarded the design beyond his life, until Sixtus V finally completed the dome in 1590, unfortunately with the omission of the beautiful figure ornament on the main cornice, so finely shown by the model. The mighty rulers of the earth may indeed give preference to a bungler over a good man and abandon the latter for personal reasons; the officials of S. Pietro were great enough to be free from such possibilities.

Brunellesco and Michelangelo did not have the work spoiled by later born professionals, that one had done on his Palace Pitti and the other on his dome of S. Pietro. They were moreover free from the modern endeavor "to create something novel

in the spirit of the first masters," and to bring things to light, which the original masters would never have approved, and for which they would have been blamed and ridiculed by intelligent posterity.

How the entrance facade would appear with the free colonnade may be seen in the copperplate of the jubilee year of 1600; what it became is shown by Fig. 491 from the illustration by Fontana;[287] what was attempted on it by bell towers etc., by Bernini and Maderna may be seen and read in the work mentioned below.[288]

Note 287. In Il Tempio Vaticano e sua Origine. Rome. 1694.

Note 288. Gurlitt, C. Geschichte des Barocco, Rokoko, und des Klassizismus. Stuttgart. 1887. p. 337, 351-358.

496 Much on the exterior may not be happy in all parts, but the all-dominating dome causes this to be forgotten; it is indeed Michelangelo's greatest work, with which he "satisfied the longing of the entire Renaissance."

Note 289. Fig. 491 is from Fontana, Note 287.

Comparison with other buildings of great dimensios best enables us to realize the scale of the magnitudes of S. Pietro. Bays of the 5-aisled Cathedral of Ulm may be placed within the domed area of S. Pietro and not extend to the outer limits of the transverse arches of the intersection (Fig. 492); twice the height of this Cathedral to the ridge of the roof reaches only to the base of the lantern. And the bronze canopy beneath the dome, about 98.4 ft. high to the top of the cross, equals the height of Palace Farnese in Rome, measured to the eaves. (Figs. 493, 494).

If we further make a cross section of the Cathedral of Bourges and place it on one made through the dome of S. Pietro (Fig. 495), it does not entirely cover the latter. What a use of piers, buttresses, and flying buttresses was required in 498 this mediaeval masterpiece in order to span the same width, which is done in S. Pietro by a single vault; not considering the height at all. What conditions, what waste of materials on the one hand, what simplicity and clearness on the other!

Yet a glance at the internal decoration in comparison with what was undertaken in Florence. In Rome a serene and noble

magnificence, which marble, stucco, and gold, the polychromy reserved for the dome, best there in mosaic work under white daylight unbroken by color, and what is the chief thing, the architecturally correctly designed subdivision of the surfaces of the vault.(Fig. 496). The domical vault soars more proudly thereby; it receives life and movement; the heavy mass is elevated. And in Florence? On a badly lighted ground a crowd of men in a refined desert, without enclosure and without composition, lacking a scale for this!

Lastly something on the treatment of the Place before the building, according to statements made by Fontana. Many words of praise and blame have fallen upon this; much has been sought behind the arrangements, which was never there concealed, and they were finally simple reasons, which required the now existing forms. It should not be here forgotten, that the pavement of the Church lies very much higher than the street leading to it, i.e., that a considerable fall from the threshold of the doorway to the Bridge over the Tiber (Bridge S. Angelo) was to be overcome. The heights of both were given; even the form of the Place was necessitated partly by Palace Vatican and partly by existing houses on the other sides; likewise must be considered the possibility of a rapid removal during the day, of the water from storms and continued rains upon so vast an area.

The variations of the site led to the design of the great stepped terrace A(Fig. 497), and the departure of thousands after the close of a festival service thereon, to its magnitude. Bernini skilfully veiled the surrounding buildings by the semicircular shape of the porticos E, F, and he thereby obtained a great atrium, that has the dimensions of the Colosseum in its area. The width of the facade with the carriage porches gave the beginning points for the connecting corridors D, E, next the portico, whose location was again practically fixed by the sloping site. If the circular form of the porticos is to remain effective, then must the gap for the view of S. Pietro not be made too wide, by which the beginning points of the corridors were determined on that side. Thus indeed originated the oblique positions of the corridors. Through them was the passage to the Palace, toward the Scala Regia, and to the

Church. In order to make a more convenient access for the people, Fontana[290] worked it out thus and gave a gentle inclination to it, since the Church lies higher than the beginning of the porticos. The problem could only be solved by the plan of numerous flights of steps, or by an inclined plane. In order to not fall into greater errors, the latter was decided upon. The members of the corridors must then become parallel to the inclination of the Place (gli ornamenti di questi corridori disposti per necessita in pendio, paralleli alle declinazione della piazza), while the pilasters and window jambs must evidently
500 remain vertical. Thus is explained the peculiarity of the ob-
501 lique architecture in the connecting corridors. Nowhere is any reference made concerning a perspective folly in this, in the descriptions of the old masters; everything is explained by the material requirements.

Note 290. Fontana. Book. 4. Chap. 5. p. 195.

At m in Fig. 497, the porticos were formerly to terminate with two great carriage ways on the right and left, but this remained undone. On the contrary, Fontana proposed to erect a campanile or a magnificent architectural work at B, at the same distance from the Obelisk as the Church, to replace the removed Tower of Bernini, with water-works behind it at W, where other connecting porticos F N F were to extend to them, to be animated by fountains at F. With reference to the course of the Tiber and to lose no building sites, the streets were to converge to a and c. But if the design be considered a piece of perspective art, then it must have been effective only from the loggia for the papal blessing; but with the design represented in Fig. 497, this could only produce an illusion as to the extent of the Place and the length of the street of acces, as well as of the number of the waiting multitude of believers.

Note 291. Reproduction from Letarouilly & Simil. Vol. 2. Plate 80.

With the same calmness in his perceptions of things, Fontana likewise explains to us the very surprising design of the Scala Regia, where likewise a perspective deception was not intended. He explains thus:-- when the Pope desired to go frog the Palace to the Church, the then existing passage was dark and dangerous:

therefore he had another constructed by Bernini, well lighted and magnificent, with noble ornamentation. The problem is represented as unusually difficult to work out, for he had to take into consideration the following:--

a. The course of the walls of the Sistine Chapel.

b. The course of the above mentioned connecting corridors.

c. Access to the Repiano Reale required the same height for the imposts as on the arches of the corridors.

502 d. A change to a narrower flight must be made at the Sistine wall.

e. The reduction in the heights of the vaults was required by the location of the floor of the Sala Regia.

Here there is also nothing said of an intended perspective effect!

How Bernini solved the problem under these difficult conditions remains worthy of admiration.

334. Final.

As a worthy closing for domed structures and central churches may be taken the well-known and most magnificent Church in Venice, named S. M. della Salute, begun in 1631 and transferred to the clergy in 1656, built by the architect B. Longhena. Especially prominent are the interesting ground plan and the beautiful interior, and the not always approved double consoles
503 es at the angles of the octagonal sides. The internally octagonal dome is massively vaulted, the external protecting dome with its graceful lantern being made of wood and covered with lead.

As the last reminiscence should be taken the grand sepulchral Church of the Kings of Sardinia, the Superga near Turin, doing honor to Victor Amadeo II, built by Juvara between 1717 and 1731 and consecrated in 1749.[292]

Note 292. Also compare Gurlitt. Chap. 22. -- For Longhena and his school. Chap. 7 of the same work.

Chapter 34. Church Fixtures: Church Furniture.

335. Basins for Holy Water.

The internal fixtures of the churches enjoyed in a special degree the favor of the new style: "which is the more easily explained, as the decorative was indeed the weakest and the most capricious side of the previously predominating Italian Gothic."

At the entrance to the House of God and near the doorway is placed a basin for holy water for the symbolic purification of those entering, with which the believers sprinkle themselves as a preparation for devotion.(Fig. 499).

Holy water basins were made of stone and of metal, and they either in the simplest way projected from the wall like consoles, or they were smaller basins supported by candelabra-like supports, -- detached creations of art-industry, which formative art undertook with the highest means.

Of metal in the simplest shape is the basin made in the Church Fontegiusta at Siena, held by an arm projecting from the wall (Fig. 500); of marble is the beautiful basin in S. M. Novella in Florence, which is half embedded in the wall, the hollow in the wall being covered by a delicately grooved shell, -- in its simple beauty being a classic model of this kind (Fig. 499).

Among detached marble basins, as the richest are to be designated those executed by Federighi (1462, 1463) in the Cathedral at Siena, where the antique tripod form was anew employed as a support, covered by the most splendid sculpture. The small fishes added in low relief within the basin must be credited to the too great love of the artist for ornamentation. The supports were formerly held to be antique, the greatest compliment that could be paid to a Renaissance master.(Figs. 502, 503).

504 Like these but somewhat simpler, were executed the holy water basins in the Cathedral at Orvieto, and very nobly treated was that by Rossimo (1518) in the right transept of the Cathedral in Pisa. In the form of a small ship on a rich candelabra support was made that in S. Trinita at Florence (Fig. 501).

Peculiarly constructed with a canopy above rich ornamentation on the wall behind it was the basin in the Cathedral at Palermo.(Fig. 504). In the Santo at Padua, the two basins are adorned by the statue of John the Baptist and the figure of the Saint. On a basin by Alessi in the Certosa near Pavia, an obelisk stands on the cover in place of the figure, -- everywhere is the greatest diversity in the external appearance of the same necessary fixture. Worthy of mention as works of art are also the holy water basins in the Certosa near Florence, in the Cathedral at Lucca, in the sacristy of the Cathedral at Empoli, those of S. Pietro at Rome , and others.

Hundreds of others in the different churches of Italy deserve similar praise; but to merely approximately mention them would lead too far!

336. Sacristy Fountains.

Consecrated fountains (lavabos), intended for washing the hands of the priests, especially before the mass, as well as for cleansing the sacred vessels, were frequently of the form of a holy water basin or baptismal font, but always were fur-
505 nished with water-tap and drip basins, and they were placed in the vicinity of the altar and in the sacristies or their anterooms. They were executed in stone and were enclosed in architectural forms, sometimes made of colored majolica.

"A work of simple design and genius" is the sacristy Fountain in S. Lorenzo at Florence, ascribed by Müntz to Antonio Rossellino, made of white marble with an enclosure and a circular back of red porphyry. It consists of a basin supported by female figures with bats' wings and fish's bodies. A lion's head adorns the front surface of the trough, from which rises a candelabra, to which two dragons cling and pour the water into the basin. The panel at the back is enclosed by a garland of oak leaves, above which an eagle stands in the semicircle with outstretched wings.

Besides these compositions, arranged rather with a tendency to sculpture, may be mentioned another; the beautiful consecrated fountain of terracotta (majolica) in the sacristy of S. M. Novella at Florence, a work of the Robbias and executed in the form of a small shrine with Corinthian columns, above

which rises a semicircular tympanum with splendid colored gar-
506 lands of fruit and cupids. On the pilaster capitals were formerly (1866) still to be seen vestiges of gilding, whereby a richer harmony of color was produced in the colored majolica. (Fig. 506).

As the simplest example is to be noted the marble lavatory from Loreto with two angels enclosed by a broad band of roses- (Fig. 505). In the vestibule of the refectory of the Badia near Florence is to be mentioned the beautiful wall fountain of Francesco di Simona (1456-64), made of sandstone; then in the Certosa near Pavia, the lavatory in the first side chapel on the left, in the shape of a shrine with pilasters; further the great "lavabo" with a long trough in the niche covered by a coffered tunnel vault and flanked by pilasters, as well as many others.

337. Baptismal Fonts.

The baptismal fountains (piscinae) were basins with living water, especially in the Baptisteries (Baptismal Churches) of the Early period, in whose place came the "Baptismal Font", made of compact stone or metal. These found place in the med-
507 iaeval churches at the entrance , and they were shaped like cylindrical vessels or as round and polygonal bowls or basins. An example of simpler and smaller type, with a John the Baptist on the cover, is preserved in Todi (Fig. 507), and another simple one is made of marble and bronze in the Church S. Marco at Venice.(Fig. 508).

A richer composition with octagonal basin, from which rises in form of a ciborium an octagonal domed structure decorated by niches and figures, is the font del Battessimo in the Chapel of S. Giovanni in the Cathedral at Siena, executed by different masters in the time after 1480 (Fig. 509), and as a work
508 entirely made of bronze, we find on the left of the entrance of the great pilgrimage Church in Loreto, -- the too richly ornamented basin with the four statuettes of faith, love, hope, and constancy, crowned by a figure group, the Baptism of John, (Fig. 510), all executed by Tiburzio Vercelli and Giambattista Vitale.

338. Internal Pulpits.

The Pulpit (suggestus) was in Italy already in the 13 th cen-
t

century placed on a pier of the North or South side of the mid-
dle aisle, and it was constructed as a small podium with closed
509 balustrade and stairway resting on columns, usually made of
stone. The Renaissance dropped this form and placed the pulpit
enclosure on a single support, hung it on a pier or on the sur-
face of a wall of the church, and proceeded in its development
from the simple to the magnificent of the highest rank.

Construction in stone continued to be preferred in the good
period; those of wood, with or without sounding boards, belong
to the Barocco period.

The ancient form was still recalled by the bronze pulpits of
Donatello in S. Lorenzo at Florence, which rest on columns and
were only so made on account of the reliefs.

As an example of the simply beautiful hanging pulpit may be
mentioned the Reader's Pulpit of Brunellesco in the refectory
of the Badia near Fiesole (Fig. 511), and as an undertaking of
the highest type, the wonderful marble Pulpit of Benedetto da
Majano in S. Croce at Florence (Fig. 512), executed in white
marble with gilding, inlaid with glass enamels and red porphy-
ry.

As an equally worthy piece and an example of a marble Pulpit
resting on a pier may be noted that built by Mino da Fiesole
and Antonio Rossellino in the Cathedral at Prato (Fig. 51?).
510 From a similar idea proceeded Antonio Gagini with the white
marble Pulpit in the Cathedral at Messina, but which in accord-
ance with the time already shows bizarre forms on the lower
portion and has an octagonal, instead of a circular enclosure.
These stone pulpits are likewise without sounding boards, like
almost all of this period of the Renaissance in Italy. Fab-
rics stretched above them (vela), which frequently covered one
511 or more bays of the church, were a protection from echoes.
The later pulpits, for example in Genoa, all have walls at the
rear with a spring door forming three sides of the polygon and
supporting the sounding board. We find a similar arrangement
in Church S. Spirito in Rome, excepting that there the rear
wall with the doorway is in one plane.

A supported Pulpit of the simplest form is possessed by Ss.
Nereo ed Achilleo in Rome, up to which lead 6 winding steps,

and consequently it is elevated but little above the floor of the Church, like that previously mentioned in S. Spirito, but which bears Barocco forms.[293] Advantages for the speaker and the hearers are connected with the low position of the pulpit, according to the covering and the height of the room. The base of the simple pulpit consists of a cylinder formed like a base, on which rises the octagonal pulpit enclosure, whose balustrade shows simple and tasteless panels; the pulpit is there attached to an octagonal pier of the middle aisle.

Note 293. See Letarouilly. Vol. 3. Plates 258, 256.

Permeated by Gothic detail is the hanging pulpit in the Cathedral in Perugia, recalling in its elevation those in S. Croce at Florence, and as a further beautiful example of a hanging pulpit, reference may be made to that carved in S. M. sopra Minerva at Rome, sculptured in wood and belonging to the Barocco style; caryatids are here arranged at the angles of the octagonal balustrade with rich figure ornamentation of its panels.

339. External Pulpits.

As examples fo preaching pulpits on the exteriors of churches may be mentioned the two small ones on the beautiful vestibule of the Cathedral in Spoleto, and that of Donatello on the Cathedral in Prato, furnished with a protecting roof, with their precious reliefs with small figures on their balustrades. (Fig. 514).

340. Tabernacles.

The Tabernacle for the consecrated oils (Tabernacolo del' Olio Santo) are as a rule inserted in the wall on the Epistle side as closets, and they are generally executed in the form of a small shrine. Such a one exists in the Badia near Arezzo, flanked by small Corinthian pilasters and covered by a segmental arched tympanum, which contains a blessing Christ-Child at the centre and two praying angels at its right and left. The
515 panel between the pilasters is designed as a perspectively diminished arched portico, whose rear wall has a small doorway. a console on the wall is ornamented by an eagle and supports the structure.[294]

Note 294. Published in von Geymüller. Illustrazione Storica. Plate 5.

We have a still more charming example at the end of the left side aisle of S. Apostoli in Florence, a small work of Andrea della Robby, yet worthy of examination, -- similar in composition, -- on which in addition to the burned-in colors, also yet exist vestiges of gilding.

341. Tabernacles.

Following this are to be mentioned the shrines for the sacrement (Tabernacle, Ciborium), sometimes placed in niches, sometimes detached, executed in bronze and marble. As a small peripteral Corinthian structure covered by a dome, the whole resting on an antique vase, is designed the bronze ciborium in Church Fontegiusta in Siena (Fig. 500). As an original creation of energetic form may be taken the likewise bronze ciborium on the high altar of the Cathedral in Siena (Fig. 515), with its charming ornamentation of little figures and angelic forms supporting candles.

To the most beautiful style of the best period belongs the marble ciborium in the choir of S. Domenico at Siena, a work of Benedetto da Majano. From a support adorned by festoons rises a base decorated by lion's paws and acanthus leaves, which bears representations of the four evangelists in relief in circular medallions, above this being on a richly ornamented candelabra portion an octagonal tempietto with a statue of Christ on the apex of the dome.

Besides this should not be forgotten another marble piece of magnificence of the early time, the ciborium now placed in the Baptistery at Volterra, a work of Mino da Fiesole, which is not so fluent in shape, yet deserves the greatest estimation in its architectural severity and the purity of its details. A square structure with pilasters on the angles, above a cylinder decorated by flat niches.

Beautiful, though less important, is likewise the marble tab-
573 ernacle on the old main altar of Ferruchio in the Cathedral at Fiesole, an octagonal tempietto, standing on an antique vase support in a shallow niche of the altar.

342. Altars.

Chief altars(altare principale) and side altars (votive and mass altars) are to be distinguished between. The former finds

its place in the principal choir; the others are placed in the side aisles and chapels. Placed free before the apse in the Early Christian period, the chief altar retreated into its choir niche in mediaeval times, which was likewise followed in the Renaissance, where a peculiar arrangement did not occur, as for example, in S. Spirito at Florence and in other places, or when a numerous clergy had to take its place in the high choir behind the high altar.

514 From the 6 th century, the lawful form for the altar was that
515 of a stone table like a sarcophagus; the Table (Mensa). The altar table resting on columns of the Eastern church, as well as the likewise early developed canopy altar (ciborium) were borrowed from the East in the 11 th and 12 th centuries. The Early Christian and Roman Churches S. Clemente and S. Giorgio in Velabro, for example, exhibit above the altar table the protecting covering resting on columns. The kind last mentioned, -- detached altars with tabernacles on columns, -- continually
576 occurs, though less commonly in the Renaissance, whereas the sculptured altar attached to the wall was in most frequent use, for then the altar had painted pictures in tall and rich architectural frames behind the altar table, finally succeeded by the stone altar wall.

579 348. Altars with Canopies.

Of the first kind must be mentioned as a model work in marble the canopy altar del Crucifisso in S. Miniato near Florence, a work of Michelozzo (1448), that consists of a simple altar table with two free and two engaged columns, that support an antique-like entablature with a tunnel vault above this, behind it being a solid wall adorned by figures of different sizes.[295] Designed by the same artist, enlarged like a chapel and resting on 4 columns, is the Tabernacle in Santissima Annunziata at Florence, executed with colored frieze and coffer-work by Pagno di Portigiani (1448-52), -- a delicately detailed work, aside from the Barocco additions.[295]

Note 295. Represented in von Geymüller; Michelozzo. Plates 11, 13-1.

An uncommonly interesting piece in both general and detailed treatment is the canopy altar in S. Francesco at Pescia by Laz-

Lazzaro Cavalcanti; the ceiling in form of a tunnel vault is supported by piers with interposed columns, and the altar table rests on a candelabra-like support; behind the latter appears a great crucifix.[295]

In the Church Madonna del Sasso near Bibiena, the ciborium is designed as a small temple decorated by columns. Four col-
518 umns support an antique-like entablature and four low pediments, above which rises a dome like a lantern; above the altar table is found a solid wall with a figure of the Madonna.

Again supported by only two columns and covered by a tunnel vault is the rebuilt altar in the Church Madonna del Calcinaio outside Cortona, a beautiful work of Giorgio Martini. Standing entirely free beneath the intersection and dome of S. Spirito in Florence is the canopied altar with its statues by Caccini, (1600 ?), and the tabernacle executed in bronze in S. Pietro at Rome may be named as a colossal and at the same time an airy example.

344. Sculptured Wall Altars.

On sculptured altars attached to walls, the front side of the table is covered by reliefs; above the table rise statuettes and reliefs within a rich architectural enclosure, or the entire wall behind them may be treated as a great and stately niche with sculptures and ornaments.

Unequalled in the beauty of its decorations and with figures of the highest worth, the altar of the Fontegiusta in Siena (1517) was executed by Marina with the richest ornaments, wrought almost detached. Angelic children and old men belong with the most perfect and most beautiful works in detail found in
519 this endeavor after magnificence in the decorative art of the Renaissance (Fig. 516). A similarly strong work is the Piccolomini altar in the Cathedral at Siena, where the altar niche is enclosed by a complete triumphal arch, that extends to the crown of the vault. As another fine example may be mentioned the sculptured wall altar and its costly enclosure in S. Cita at Palermo, where the surfaces of the pilasters consist of superposed panels with figure reliefs (Fig. 517).

The sculptured altar with statues and reliefs in the architecture of the wall is especially developed in Naples, where it

is all frequently arranged within a niche with the greatest luxury.

As delicately detailed is still to be noted the altar of Alexander VI in the passage to the sacristy in S. M. del Popolo in Rome, a work of Andrea Bregno (1473);[296] good proportions, graceful arabesques, and sculptures in excellent style; especially beautiful is the head of Christ within a semicircle over
520 the principal cornice. The shallow shell niche subdivided by pilasters contains statues of S. Maria, S. Catherine, and S.
521 Augustine. Another beautiful marble altar is to be found in the fourth side chapel on the right side of the same Church, with Saints Vincent, Catherine, and Antonius. (1497).

Note 296. Published in Letarouilly. p. 567, Plate 278.

As a precious work, permeated by all the highly prized art of the Robbia school, appears the main altar of S. M. della Grazie near Arezzo with angels' heads, cupids, medallions, the Madonna with praying angels in the tympanum, as well as an ornamentation by small figures within the arches and on the front wall of the altar niche, wherein should not be forgotten the
522 well known precious colored garlands of fruits and the figure of the Madonna. An ever youthful charm resides in these creations.

Large and rich enclosures of altars in colored terra cotta from the end of the 15 th century in Padua (Eremitani) and by Giovanni Minello are to be mentioned, as well as especially rich, large, and splendid enclosures of altar figures, executed in marble or terra cotta in Vicenza (S. Lorenzo, S. Corona), where the fifth altar on the left is "one of the most magnificent imaginative works of this kind." Verona likewise has a series of great and rich works to show, and the most charming, especially happy in their elevation, are the altars in the transept of S. Marco at Venice, entirely executed in white marble by Pietro Lombardi.

345. Altars with Paintings.

As altars with pictures are to be designated those, where within the monumental enclosure above the simple altar table is arranged a painting on the wall, filling the entire back of the niche. Then others with a painting standing on a base

523 (step) within an architectural enclosure composed of pilasters and an antique-like entablature; the latter is carved in wood and covered with colors, usually blue and gold: the surfaces of the pilasters are then decorated by gold ornaments on a blue ground, and the capitals, as well as the architrave and the main cornice, are entirely gilded; the frieze between them exhibits on the contrary gold scroll ornaments in relief on a blue ground.

Venice and Florence possess the greatest abundance of this kind of enclosure, especially Florence in the S. Maddelena de' Pazzi and in the transept and rear portion of S. Spirito. "Here alone may one realize how a Sandro or a Filippino makes no perfected impression within a plain or gilded wooden frame with little ornamentation, for only these magnificent frames beautifully echo the extremely rich life in the painting."

The most important example of this harmony of picture and
524 frame was left to us by Mantegna (1459) in his Enthronement of S. Maria, with musical angels and saints in a magnificent en-
525 closure with pedestals beneath them; the work is at present hung on a wall of the choir in S. Zeno at Verona, and it has an entrancing effect.

As examples of the before mentioned altars with fixed mural paintings and a simple table should be mentioned those in the
526 Chigi Chapel in S. M. del Popolo and in certain side altars in S. Pietro at Rome; the mural pictures in the latter are frequently executed in mosaic.

The Barocco period indulges preferably in these massively architectural and too richly developed wall-altars, enclosed
527 by straight or twisted, single or coupled columns, with curved and broken pediments, wherein likewise occur works of sculpture instead of paintings, as is the case in Church Gesu at Rome, for the altar of S. Ignatius, executed by Andrea Pozzo.

A combination of table altar with a pedestal and a tall tabernacle structure of the most splendid kind, on which are lavished marble, bronze, and the nobler stones, with figure ornament and costly reliefs on the front of the altar table, is shown by the chief altar of the unequalled certosa near Pavia,

which desires to excel all others in this also(Fig. 518). It is a work of the 16 th century, in which participated Bramcilla, Marini, and Orsolini, the latter executing the two angels on the table, and then especially Annibale Fontana, the famous bronze-founder, who made the candelabras and the obelisks.

The 12 marble altars in the Cathedral at Pisa may likewise be here mentioned as further examples of wall altars in a rich and imposing style, by reason of the fact, that their designs are attributed to Michelangelo and their execution to Stagi da Pietra Santa.

346. Altar Crosses.

The cross belonged to the liturgic equipment of the altar from the earliest period. Made of a noble metal, it formed the architectural finial of the ciborium (Ss. Nereo ed Achilleo and others in Rome), or it may hange above the altar, suspended before it. It was later on the retable, and it was finally placed on the table itself between the candlesticks as an altar crucifix. As in ancient times, the ornamental characterization and decoration of the ends of the arms of the cross was retained and developed by the Renaissance.

From the earliest period to the present day, these crosses have been made of wood, of wood covered with gold leaf, solid or hollow, entirely of gold or silver, of ivory, amber, bronze, and of stone. A well known and beautiful example of a silver altar cross of Florentine work is given in Fig. 519. Beautiful works are likewise to be found in the Argentaria of Palace Pitti in Florence, among which are especially to be noted the bronze crucifix of Giovanni da Bologna and then the silver cross given (1582) for S. Pietro in Rome[297] by Cardinal Farnese.

Note 297. Illustrated in Simil. Vol. 2. p. 36.

347. Candlesticks.

Since the 12 th century and universally after the 13 th, candlesticks form a part of the altar decorations. Made of marble after the designs of Michelangelo, they are to be found in the Chapel Medici (S. Lorenzo) at Florence (Fig. 521), and charmingly executed in bronze by Alessandro Bresciano, on the
528 altar of S. M. della Salute in Venice (Fig. 520). Of the same metal are likewise the beautiful candlesticks of the high alt-

altar of the Certosa near Pavia made by Annibale Fontana. Already of Barocco design are the silver candlesticks in the choir of S. Stefano (1557-1617) in Venice, those of the Chapel of Antonius at Padua and at other places. Other rich pieces are preserved in museums, for example in Museum Civico at Bologna, in Museum Nazionale (Bargello) at Florence, etc.

Besides altar candlesticks, the great candelabras and the Easter candlesticks are especially objects of artistic treatment; these were executed in wood, bronze, in the noble metals, or even in marble.

A very old piece of this kind from the period of the Cosmati, prominent for its decoration full of movement, is the Easter candlestick in S. Cesareo in Rome. Of bronze are made the candlesticks beside the high altar of S. M. della Salute in Venice by Andrea d'Alessandro Bresciano, those of lesser importance in S. Petronio by Agostino de Marchis (1468), then some to be found in Museum Bargello in Florence. Of those represented in Figs. 522 and 523, the larger one is by Valerio Cioli (1529-99); the smaller is designated as the work of an unknown Tuscan in the 16 th century.

A splendid piece of the first rank, "which sums up the entire decorative knowledge and powers of the Paduans of the time," is and remains the great bronze candelabra of Andrea Riccio (1507-16) with a marble base by Francesco da Cola (1515) in the Santo at Padua (Fig. 524). A wealth of ornaments wrought with spirit, but too many good things!

Of massive gold are two candelabras made in S. Pietro at Rome (1518), which Simil (Vol. 2. Pl. 38) publishes with the note; executed by Benvenuto Cellini after the designs of Michelangelo and Raphael!

Of the larger wooden candelabras for churches, two are especially prominent; the one made by Fra Giocondo for Monte Oli-
529 veto near Buonconvente (Siena) and another with the most beautiful taste in details but less perfect treatment in elevation, in the Church of S. M. in Organo in Verona (Figs. 525, 526), carved by Fra Giovanni da Verona.

348. Hanging Lamps, Chandeliers, and Bracket Lamps.

Lighting with oil was still rare in churches in the middle

ages, but later found extensive employment, especially by the so-called eternal lamps; these were in the form of suspended lamps.

A great number of such hanging lamps of earlier and later periods and executed in the noble metals are to be found in S. Annunziata at Florence, in the chapel built by Michelozzo on the left of the entrance.

As a monumental example may be taken the bronze lamps suspended in the main aisle of the Cathedral of Pisa, made after the design of Battista Lorensi (1587), on which Galileo must have made his observations on the pendulum. Two circles are connected together by 4 S. Andrew's crosses, between which are inserted supporting cupids, and these receive a volute cap above and a volute base below; the rings have candle-holders and small plates supported by chains, forming a transparent whole.

Chandeliers with hanging glass or crystal ornaments were favorite pieces of decoration in all Italy for church festivals.

As works in stone are to be mentioned the four marble candelabras of Matteo Civitali from Lucca on the choir enclosure in the Cathedral at Pisa.

Bracket lamps of bronze in the form of angels supporting basins and holding candles are to be found at the high altar of the Cathedral in Siena, where as further side lights, larger figures of angels standing on consoles are attached to the piers. The slightly clothed statuettes hold the arm extended straight in a rather theatrical pose, in the hand being a small cup with the pin for the candle.

530 849. Reliquaries.

At certain church festivals, in addition to the relics necessary to the consecration of the altars, yet others are exhibited, which are contained in artistically wrought and costly reliquaries of very varied kinds and forms, and whose exposure on the altar was expressly favored by Leo IV (847-55). These were made in the form of ivory caskets or cases, boxes of fine woods covered with silken fabrics, wrought in gold and silver, cut from fine stones or crystals, or of gilded copper and brass, and they could not be shown without the reliquary; they were preserved either on the table of the altar

or in the wardrobes of the sacristy, and they appear as receptacles for the entire body, or as small caskets for receiving little portions. Likewise were they made in the form of busts for containing the skulls of saints or martyrs, in the shape of arms for concealing the hollow bones of the arm, as fingers, feet, or other larger portions of the body, as figures (images), i.e., statuettes of the saints, whose relics were therein contained; in this case, they were of wrought metal or were cast hollow.[299] But they were likewise formed as monstrances, where the relic is found in a cylindrical tube of glass or crystal, so that it might be seen externally. A beautiful example of this kind, a certified Italian work from Perugia, is given in Fig. 527.

Note 299. See Otte. Vol. 1. p. 183 et seq.

350. Sacred Vessels.

To the altar likewise belongs all the so-called sacred vessels used for liturgical purposes; cups and their appurtenances, patens, caskets for the host, ciboriums, and monstrances, measuring cups and vessels for pouring, censers for incense and little ships, vessels for holy oil, mass bells, holy wat-
53 er basins, etc.-- Works of art and of art industry, which it would go too far to treat in detail in a book on architecture.

351. Stalls and Paneling.

There prevailed together two methods in construction for treating the carved and joiner's work; the smoothly inlaid work (intarsia, marquetry) and the sculptured work, flat to strongly projecting, even with undercut reliefs and partial gilding, that later became more common. Both methods were separated or were exercised in common on the same piece; for representations of figures, intarsia was preferred. In certain cases also occurred an imitation of intarsia by painting.

Until about the middle of the 16 th century, joinery was limited to tolerably pure forms; but it then shared the fate of architecture; it deteriorated in external effect and eventually became poor. The Rococo breathed new life into the stall-work for a time; but this improvement did not last long.

A general representation of the arrangement and treatment of a stall is given by Fig. 528 from the choir of S. M. in Organo at Verona. The following works may be more fully considered in detail as the more important and be so regarded.

1. From the earliest period and with still Gothicized details are the choir stalls by D. da Gajuolo and F. Manciotto, now preserved to us in the choir of S. Miniato near Florence.

2. Allied to this work is the paneling in the sacristy of S. Croce (1440-50) by Giovanni di Micheli with its finely graduated interiors, and the close of the works of the 15 th century in Florence is formed by the backs of the choir stalls in S. M. Novella by Baccio d'Agnolo.

3. There are preserved in Siena from the period of 1415-1429 likewise strongly Gothicized choir stalls in the upper chapel op Palace Pubblico.

4. In Modena exists a choir stall of 1465 and some paneling.

5. Wardrobes in the sacristy of S. Marco (1450) at Venice, begun by Sebastiane Schiavoni, continued by B. Ferrante from Bergamo and completed by others; they show well carved architraves and large intarsias.

6. "To the finist intarsias in Italy" belong the magnificent stalls in the choir of the Certosa near Pavia (1486), executed by B. de' Polli after Borgognone's designs.

7. The stalls in the lower portion of the choir in the Cathedral at Pisa, wrought by Domenico di Mariotto and his associates (1478-1515), patched together again with the original parts after the fire in 1596, exhibit beautifully carved supports and arms with charmingly treated scrolls
532 and fine acanthus forms (Fig. 528).

8. Allied to the former but still more finely designed and executed are the arms in the Church S. M. della Carceri at Prato (Fig. 529) and those in the Badia at Florence (. (Fig. 530).

9. The famous stalls of the choir of S. Domenico at Bologna with delicate figure intarsias, executed by Fra Damiano Zambelli da Bergamo (1490-1549) with the aid of his brother and several assistants in 1528-50, seek their equal

throughout the world. An immeasurable richness with the most skilful handling of the picturesque. By the assistance of metal inlays for weapons and the graduation of the tones of the wood, the highest point is here reached, that was ever attained by intarsia work.

10. As a good work of Riccio (1560) must be mentioned the choir stalls of the lower Church in Monte Cassino.

11. Also those by G. Gigli (1534) in S. Francesco.

12. Naples is especially rich in works of the Barocco period, the transition to which is made by the costly wardrobes in the sacristy in the Annunziata by Giovanni da Nola (1540).

13. A very interesting work, especially in decorative respects and in scroll work with figures are the stalls of the cathedral choir in Genoa, carved with a perfect mastery by A. da Fornari.(1514-46).

14. As a remarkable work worthily following the Genoese stalls should be mentioned the choir stalls of S. Giovanni at Parma, said to have been made by Zucchi and Testa (1512-1538).

15. In the choir of S. Giustina at Rome are rich stalls from the beginning Barocco period by Riccardo Taurino of Rouen.

16. Some likewise belonging to the Barocco period (1557) are to be noted in Venice in the choir of S. Giorgio Maggiore, by Alberto di Brule.

17. The famous stalls in the choir of S. Pietro in Perugia, the work of Stefano de' Zambelli da Bergamo (1535), deserve the highest appreciation by their noble magnificence and their perfect taste.

18. Worthily placed next the preceding in the "splendidly happy"choir stalls in the choir of S. M. Maggiore in Bergamo with the charming intarsias of Francesco Capodiferro from Lovere (1522-52), on which his brother and his son Zinnino helped(1547-54). The front of the stalls is decorated by a slender wooden arcade portico with carved acroterias (sea monsters and candelabras), and it is a work of Giovanni Bellini and his sons.(1540-74). An undertaking of Italian art industry of the highest rank exists in this creation.

19. But everything is lowered by comparison with the works of Fra Giovanni da Verona (1457-1525) in the Church of his Monastery in Verona, S. M. in Organo, -- a work as beautiful as skilful (Figs. 525, 531). The paneling of the left wall of the sacristy is somewhat later and richer, already being somewhat overloaded in details, but of amazink execution. The carved work is charming and assured, and in spite of the frequent repetition of the same members, it is not wearisome to the observer, since everything was treated with equal love by the sculptor.

20. In the sacristy of S. M. della Grazie at Milan is an example of the imitation of intarsia by painting on wood.

21. An example from the 17 th century is afforded by the choir stalls of S. Pietro in Rome,[300] dated in 1626 by Simil.

Note 300. Published in Simil. Vol. 2.

352. Lecterns.

Lecterns and choir stands are further to be described. In the choir of the Cathedral at Pisa is a lectern (Fig. 532), executed by Matteo Civitali from Bucca, that consists of an antique-like candelabra and an eagle with extended wings, a
534 motive already prized by the preceding period of art. Another lectern, belonging to the later period (1626), and where the reading board is supported by cupids instead of the eagle, is to be found in the choir of the Canons in S. Pietro.[301]

Note 301. Represented in Simil.

Another more beautiful one was executed by Fra Giovanni da Verona for the choir of his Church S. M. in Organo in Verona.

Likewise is there one in Museum Bargello in Florence with inlaid work and good carved work (of 1498), which in the year 1866 still stood in the Monastery of Oliveto near Florence; at least the same one was there drawn by me.

353. Bishop's Thrones, Confessionals, and Choir Galleries.

An ornamental masterpiece of "intarsia simplified by the antique" is the bishop's throne in the Cathedral at Pisa, wrought in 1536 by Giovanni Battista Cervalliera. From the

middle of the 16 th century date the two thrones above the choir steps there.(Fig. 533).

As examples of confessionals and as thoroughly earnest work of the 17 th century may be mentioned one of these in S. Michele e Gaetano at Florence and one in S. Michele in Bosco near Bologna by Fra Raffaello with the remarkable representation of the nude "Luxury".

One of the most prominent choir galleries, showing the greatest luxury in the best sense of the word, is that of white marble with the gilding of some ornements in the Sistine Chapel at Rome.[302]

Note 302. Ascribed by Simil to Baccio Pintelli (1474). -- Burckhardt recognizes in the "similarly decorated marble screen" of this Chapel the two workshops of Mino da Fiesole and of Giovanni Dalmata.

354. Organs.

Of organ galleries, there are first to be mentioned the two executed in white marble in S. Annunziata in Florence; as rich balustrades on consoles above architecture resembling a triumphal arch, one dating from the 16 th, and the other from the 17 th century (Fig. 534).

An organ gallery wrought in sandstone with splendid details in S. Maddelena de' Pazzi at Florence, where a closed balus-
535 trade with small piers containing niches is employed (Fig. 535), as well as a marble organ gallery in Stefano at Genoa by B. da Rovezzano (1499), should not be omitted.

In S. Giacomo degli Spagnola at Rome is an organ gallery of especial interest on account of the good preservation of the painting and gilding. Burckhardt designates that by Vincenzo Vicentino in S. M. Maggiore at Trient (1534) as a "noble and great organ railing." A beautiful piece of woodwork, where in the execution the color of the wood alternates with blue and gold ornamentation, is the organ gallery in the Cathedral at Lucca (1481), as well as the likewise wooden organ gallery over the door of the sacristy of the cathedral in Siena, made by the two Basili in 1511.

"The most perfect masterpiece of its kind," a work of Giovanni di Pietro,"called Castelnuovo", is and remains the magn-

magnificent organ in the Cathedral at Arezzo by Vasari.[303] A
stone substructure with consoles receives the singers' gallery
with its stone balustrade. The front of the organ is flanked
536 by projecting Corinthian columns with ornamented shafts, which
support an antique entablature with a high segmental tympanum
extending to the ceiling vault. The organ pipes are arranged
in a square enclosure divided into seven panels, three of which contain the small pipes and four the larger ones, -- a beautiful elevation like a sideboard, on the whole. Between the
great consoles of the substructure are inserted niches with figures; in the middle space stands a small altar.

Note 303. Represented in von Geymüller; Vasari, Plate 11.

More free in design are the organs in S. M. del Popolo and the two in S. M. sopra Minerva at Rome. The last are found in the transepts and are skilfully arranged over the two round-arched vaults of the two chapels beside the choir. From the spandrils of the two arches meeting on the intermediate pier rise figures, which with the keystones in form of consoles support the organ balustrade. The front of the organ shows the motive of the triumphal arch in the style of the Tombs of the Prelates in the choir of S. M. del Popolo. The figures have almost the tone of white ivory; the pipes are of the color of tin or silver, everything else is gilded.

355. Chapel and Choir Enclosures.

Concerning enclosures in chapels and choirs, Rome took precedence with the marble enclosures in the Sistine Chapel, which is assumed to be a work of Mino da Fiesole and of Giovanni
537 Dalmata. From the floor first rises a solid white marble par-
538 tition 8.21 ft. high, decorated by shields of arms, cupids,
and garlands of fruit, on which stand small marble pillars of square section, that support a marble entablature on Corinthian capitals, these parts together being rather more than 6.56 ft. high, so that the enclosure rises to the height of about 14.77 ft. To the pillars correspond marble candelabras arranged for lighting by candles, which stand on the entablature. All surfaces and members are covered by ornaments, the spaces between the pillars are filled by simple metal grilles.[304]

Note 304. Represented in Simil.

Altar enclosures of simpler kind, but with the noblest ornamentation and likewise of white marble, were executed in S. M. dei Miracoli at Venice in 1480-6 under the direction of Pietro Lombardi (Fig. 537). The panles with round pieces of porphyry, palms and dolphins, belong with the most charming Venetian works in ornamentation.

Marble screens with grilles and with intermediate columns for enclosing chapels may be found excellently wrought in S. Petronio at Bologna. Enclosures from the 15 th and 16 th centuries in the Churches of S. M. Maggiore, S. Giovanni in Laterano, Baptistery S. Giovanni, and S. Pietro in Rome, together with some in Milan and Lodi, are published in the work mentioned below.[305]

Note 305. Gruner. Plate 62.

As marble balustrades in pure forms are the enclosures executed in Chapel Carafa in S. M. sopra Minerva at Rome (Fig. 538), with other beautiful examples in S. M. del Popolo there.

Near the high altar in S. M. della Grazie at Milan, the enclosure is constructed of different materials, though belonging to the Barocco period; the pedestals, the continuous base, and the hand-rail consist of red Veronese marble, the framework between these being of black marble, and the inserted panels are of bronze. Grilles entirely of bronze of the era of 1444 are to be found in Chapel della Cintola in Prato by Bruno di Ser Lapo Maggei.

The finest grilles in iron and bronze for enclosures separating the chapels, transepts and choirs from the nave, were executed by the Milanese artists Francesco Villa, Pietro Paolo Ripa, Ambrogio Scagna (1660) in the Certosa near Pavia.[306]

Note 306. See two examples in Beltrami, L. La Certosa di Pavia. Milan. 1895. p. 130, 131.

539 The combination of dark iron and light bronze is largely preferred in allied works during the period mentioned. (Second half of the 17 th century).

356. Tombs, Epitaphs, and Cenotaphs.

The custom of interring in churches deceased persons of the ecclesiastical or noble classes, and of marking the places by[307] monuments, extends throughout the entire Christian middle ages;

it continues until the latest period of the Renaissance. Sometimes for high ecclesiastics, as in Rome, sometimes for warlike aristocrats, as in Naples and Venice, then for leaders in science and art or prominent statesmen (S. Croce in Florence), were such artistically treated memorials created.

According to their forms, we have to do with horizontal or vertical monuments, the last of these rather belonging to the later period. Burial places in the former were indicated by stone or bronze plates, which are level with the pavement, which were followed by the so-called Tomb (Tumba). There are masonry tombs raised above the pavement and covered by a stone or metal plate, or entirely constructed of metal plates; then the tomb may be isolated or be set with one side against the wall, also being likewise covered like a niche, after the manner of the arcosolios of the catacombs. Then are also to be added those like biers, tombs of stone or metal resting on columns or animal forms, which even belong to the end of the middle ages.

Note 307. See Otte. Vol. 1. p. 334.

Epitaphs and Cenotaphs were erected in memory of the dead
547 on the walls and piers of churches and monasteries, and they belong to the species of vertical monuments.

What the Gothic created in this domain in Italy is very affected in contrast with what the Renaissance produced. The first was satisfied with the sarcophagus placed on columns or supporting figures with scarcely visible and elevated reclining statues, or a tabernacle was set on columns with an oil painting in deep shadow. Where statuettes were employed, they failed in their proper effect on account of their too elevated position, neither were angels drawing aside a stone curtain a happy conception.

The Renaissance utilized this legacy, but it transferred the preceding ideas "beautifully, thoughtfully, and in reasonable proportions." Besides this inheritance, there come under consideration the much earlier antique, which remained not without influence upon these almost richest and most remarkable art works of the Italian Renaissance.

Architecture and sculpture equally take part in the work,

where the most diverse kinds of stone came into use, from the plain sandstone and light marble of a single color to the costly variegated kinds and hard granites or porphyry.

Besides these, bronze was used by itself or in combination with costly stone, as for example, on the Sarcophagus of Giovanni and Piero de' Medici in S. Lorenzo at Florence by Andrea Verrochio (Fig. 540).

Both the temporary and the monumental took part in the monuments in the early period, for beside the white marble, dark red porphyry came into use, especially in the form of panel slabs (Tombs in the Badia and in S. Croce at Florence), or heraldic colors were applied to the marble, especially blue, red, and gold, where also the coat of arms gleamed in the family colors (Tombs in Araceli and in S. Prassede (1474) in Rome), and the wall surfaces behind the sarcophagus were colored a brownish-red. The palls on the state beds frequently exhibit fabrics with golden patterns on a blue ground. (Florence).

541 The prevailing motive permeating the tombs of the Renaissance is, as a rule, a niche of no great depth, in which stands the sarcophagus below, directly upon this or on a state bed above it being the reclining statue of the deceased, within the semicircle being a Madonna with angels or protecting saints in high relief; the piers of the niche, the ends of the sarcophagus, the imposts and the crown of the arch, are decorated by statuettes and child angels. The niche piers in Florence are almost always treated as Corinthian pilasters; they are more commonly animated by small niches in Rome; transferred into colonnades with statues, we find them in Venice and Verona as parts of larger, more extended, and even wall decorations in the form of triumphal arches.

As a sarcophagus sculptured from marble, the beautiful monument of Angelo Acciajoli in the Certosa near Florence, a work of 1550, alleged to be by Donatello and Giuliano da Sangallo (Fig. 539), with which is compared as the best, the sarcophagus of Sixtus IV in S. Pietro at Rome, cast in bronze by Antonio Pollajuolo in 1493. On a state bed is the reclining statue of the Pope in full vestments with the tiara on his

head, four shields of arms at the angles and six allegorical figures on the vertical surface of the bed. The side walls are divided by consoles ending in lions' paws with three reliefs containing figures at the back and two on each end, -- the whole being an earnest and grand work of charming beauty!

The antique sarcophagus was utilized by Donatello in his Tomb of Giovanni de' medici in S. Lorenzo at Florence (Fig. 540), and Francesco da Sangallo recalls Etruscan models in his Monument executed for Angelo Marzi in the Annunziata at Florence (1546), with the reclining figure of the deceased supported by his right arm upon a simply studied sarcophagus, certainly a very refined conception (Fig. 541), and the same master takes the Roman shrine with a seated figure (1560) for his Bishop's monument.(Fig. 542).

Luca della Robbia likewise adheres to the antique sarcophagus in his simple and beautiful Monument for Benozzo Federighi (1450) in S. Francesco di Paola at Florence. On the lid of the sarcophagus is placed the recumbent statue of the deceased in the vestments with the mitre on his head, on the background of the niche being the half length figures in relief of the Saviour, of the Madonna, and of a Saint; garlands
542 of flowers in flat panels extend around the niche on four sides, crowned by a rather dry cornice. Here is a greater inspiration, a deeper earnestness is in this early creation, than in all later pretentious examples (Fig. 543). Mino da Fiesole was satisfied with a closed sarcophagus resting on consoles and the exhibition of a bust of the deceased for his Bishop's Tomb in the Cathedral of his native place (Fig. 544); the ornamentation is there of the greatest delicacy, tender and beautiful in design and execution.

Donatello fell into the faults of the Gothic in his Tomb for Pope John XXIII in the Baptistery at Florence. He created one animated by niches with figures and pilasters, true Renaissance architecture, above which the simple sarcophagus with the antique-like state bed with the reclining figure of
543 the Pope rests on consoles, but which suffers from its position, too high in relation to the whole. The figure of the Madonna in the shell is beautiful, but the details of the

shell itself are too coarse, and the stone drapery is not a happy addition (Fig. 545). In the same way likewise suffers the Tomb of the Cardinal of Portugal (1459) in S. Miniato at Florence (Fig. 546), where the lower position of the sarcophagus with the state bed is to be commended.

Earnest and good in elevation and details, Mino da Fiesole again continues in the Tomb for Marchese Ugo in the Badia at Florence, where the side panels of the walls of the niche and the spandrels near the round medallions of the Madonna are executed in red porphyry, while all the remainder is made of white marble (Fig. 547).

Allied to this is the Monument of the Florentine brothers Bonsi in the atrium of S. Gregorio in Rome, according to Burckhardt "one of the most beautifully arranged in the entire Renaissance." The busts of the two brothers are exhibited in two semicircular niches of the substructure, on which stands a trough-like sarcophagus, above this being the Madonna and the Child, executed in relief on the wall, with a praying angel on the right and the left thereof. The plain semicircu-
544 lar tympanum is here relieved by a shell with the heraldic arms of the Florentines, which likewise occurs on other monuments; the angles are accented by balusters (Fig. 548); the arabesques are especially delicate.

The highest ornamental movement and style, "explained by Grecian and not by Roman models," appears in the Monument of Marsuppini executed in S. Croce at Florence by Desiderio da Settignano (1450). "Everything capricious has here disappeared, the happiest coordination makes even the greatest rich-
545 ness enjoyable. What was perhaps not later attained in this purity and magnificence is especially the scroll work on the sarcophagus."[310] (See Fig. 121 and compare it with the Biga of the Vatican).

Note 310. See Burckhardt, J. Der Cicerone etc. Basle. p. 234. 1860.

The most important and last form to which the architecturally designed wall-tomb could attain, where the triumphal arch is treated with easy majesty as nowhere else, is judged by Burckhardt to be in the Tombs of the Prelates in the

choir of S. M. del Popolo in Rome, designed and executed by
the great Andrea Sansovino (1505); the arabesques belong to
546 the most beautiful of the entire Renaissance.[311] Besides these
art works, there is also in Rome the Monument of Savelli in
Araceli (1498), distinguished for its sculpture and decorat-
ion, then that of Petrus Ferrix in the first cloister of S.
M. sopra Minerva, and further to be mentioned is that of Pie-
tro Riario (1474) in the choir of S. Apostoli; with the Tomb
of Bishop Bocciaccio (1497) in the cloister of S. M. della Pa-
ce, and with these a hundred others of like artistic worth,
which cannot even be named here.

Note 311. Published in Letarouilly.

In the Certosa near Pavia and beneath a two-story monument
(Sacellum) is the Sarcophagus of Giovanni Galeazzo Visconti,
commenced by Giacomo Christoforo Romano and Benedetto Prioscо,
(both have left their names inscribed on the monument, the
one being on the main cornice and the other on the base of the
statue of the Madonna) and completed by the aid of Galeasso
Alessi and of Bernardino da Novate (1492-1569), which especi-
ally charms us (Fig. 549).[312]

Note 312. After the illustration by Beltrame, p. 108 et seq.

Strongly showing Roman and Grecian influences is the Monu-
ment of Strozza in S. Andrea at Mantua (1529), where the rec-
umbent and extended statue of the deceased lies on a slab bor-
dered by an entablature, and which is borne by four caryatids.
They recall in form and pose a well known Grecian work in the
marble in the Museum Nazionale in Naples, or those of the Er-
ectheion in Athens. Standing on a decorated and common plinth,
they give the work a peculiar effect of especial charm.(Fig.
550).

A similar creation is recalled by this, the Tomb of Caraci-
ola in S. Giovanni at Carbonaro, which is ascribed to Andrea
di Ciccione. But in place of the female figures, there are
three fully armed forms leaning against rectangular piers,
547 and as at the Incantada at Salonichi, these are each wrought
from one piece, together forming supports on which rests the
sarcophagus adorned by small figures in niches; the front
548 surfaces of the latter are decorated by late Roman aspiring

figures holding a garland.

Likewise the Monument of Giovanni Borromeo, transferred to Isola Bella, a splendid work of the transition style, shows a similar motive with the use of three pillars with figures on the longer sides, which support the richly sculptured sarcophagus.[313] This part of the work is ascribed to Omadeo; according to documentary evidence, Antonio Patti worked on this monument between 1475 and 1479.

Note 313. Illustrated in Meyer. Vol. 2. Plate 10.

Omitting the figures from the rectangular corinthian pillars, but with an arched niche over the sarcophagus in which is found the equestrian figure of the hero, is designed the Tomb of Colleoni in Bergamo.

To this group is also related the Tomb of Doge Mocenigo in S. Giovanni e Paolo in Venice, where in a niche, instead of piers with figures attached, detached figures support the sarcophagus, while with reference to its elevated position, the statue of the doge on the supported sarcuphagus is represented as standing.

As a representative of the great Venetian memorial tombs, triumphal arches decorated by columns and with figures in niches, that of the Doge A. Vendramin in Ss. Giovanni e Paolo may be mentioned.

Likewise recumbent and erect figures on the sarcophagus and even the equestrian statue above it (for example, in Bergamo made of gilded wood on account of its weight.!).

From the end of the first half of the 16 th century till in the Barocco period, the tomb exhibits as the typical form a
549 great sarcophagus with allegorical figures and with mural ar-
550 chitecture and the portrait statue of the deceased. The most talented works of this kind are considered the masterpieces of Michelangelo in the sacristy of S. Lorenzo, the so-called Tombs of the Medici in Florence (Figs. 551, 552). "Architecture and sculpture are so conceived together, as if the master had previously modeled from the same clay sarcophagus, statues, pilasters, cornices, niches, doors and windows. Great-
551 est **unity of space**, light and forms,"-- a judgement gladly accepted by everyone. With the same basal ideas are executed the Tombs of the Popes in S. Pietro during the same period,[314] amon

among which that of Paul III (1549) with the wonderfully beautiful half reclining figures of wisdom and justice by Giacomo della Porta must be designated as the most skilful.

Note 314. Published in Simil.

The Tombs in the Chapel dei Principi, the Sepulchres of the
552 Grand Dukes of the House of the Medici in Florence (constructed in 1604) show in 6 niches, executed on a colossal scale, the magnificent granite sarcophaguses of the princes from Cosimo I to Cosimo III (1575-1723), above being niches with partly gilded bronze statues, -- an echo of Michelangelo's ideas, weak in form but surpassing everything else in the costliness
553 of the materials and the greatness of the scale. There was applied to this puspose $4,400,000, not from taxes, but from the private means of the family! Beyond everything was the Tomb of Julius II, which was to have been the life work of Mi-
554 chelangelo, of which only sketches and single figures (in S. Pietro in Vincolis) have come down to us.[315]

Note 315. Compare Album Michelangiolesco dei Disegni Originali reprodotta in Fotolitografia. Florence. 1875.

357. Bells.

"Vivos voco, mortuos plango, fulgura frango!" (I call the living, lament the dead, and break the lightnings!).

As signals for public assemblies and for waking the people, bells already existed in ancient Rome, and they were devloped further for church purposes. The oldest were indeed small and were riveted together from plates, although even earlier are mentioned cast bells.

The 9 th century is the era of the general extension of the ecclesiastical use of bells. The sculptured ornamentation was very modest in the middle ages; it was usually limited to a few outline works and inscriptions. In the upper story of Museum Bargello in Florence are exhibited 7 examples, all of which show an elongated tulip form with the usual edge mouldings, the oldest one bearing the date of 1153, while others
555 have the dates of 1383 and of 1440. Some have the clapper rod fastened at top by keyed bolts, others by screws.

A richly ornamented bell is decorated by garlands on the upper margin and by a band of cupids below. it founder is given

as the Florentine master Giovanni M. Cenni and the date as 1675. On the Leaning Tower in Pisa, some bells exhibit the arms of the Medici, and one of these bears the inscription:-- "Fusum . Hoc . Oles . Deoque . addictum . Nicolas . Castello. Aedituo. A. D. MDCVI."

The arrangements for ringing the bells are of different kinds. Beneath the wooden yoke with iron pinions working on iron bearings is fastened a triangular wooden frame, its apex turned inward, and which is set in motion when ringing. Very primitive is the arrangement on the five bells of the Campanile in the Cloister of S. Annunziata at Florence; on the yoke is nailed a wooden board extending downwards, on it being placed a bar at right angles, from whose end hangs the rope for ringing. It should not be forgotten, that not all bells are swung in many churches in Italy, but they are often merely struck.

A masterpiece in form and ornamentation is the great Bell of S. Pietro in Rome (Fig. 553), which was cast in 1785.[317]

Note 316. Reproduction from Hittorf & Zanth.

Note 317. See Plate 39, year 1785, in Simil. -- The lower diameter of the bell is given as 7.84 ft.

Chapter 35. Buildings for Monasteries and Brotherhoods.

358. Monasteries.

On this side of the Alps in the middle ages, monastic buildings had already attained a high degree of completeness in plan and extent, usually a greater one than in Italy, where scarcely a monastery of importance from the 12 th to the 14 th century is now to be found. But in the 15 th century, the Renaissance again took up this class of buildings, and it generally carried them further and in greater splendor, than was permitted to the North. What favored monastic buildings and gave them a high importance were "the excellent and rational plan and the beauty and diversity of the porticos", which the Renaissance so well undesstood how to manage. In the varied architectural treatment and development of the cloister surrounded by porticos lies the architectural weight of this species of buildings.

But then it is the church itself of the monastery, whose sacristy and other subordinate rooms, the refectory, the chapter hall, the dormitory, as well as the residence of the prior, and the library, together with the necessary offices (barns and stables), hospitals and rooms for guests, etc., which make the plan so extended and so notable in a high degree.

The magnitude of the buildings and their equipment depends upon the rules and the wealth of the order, which they are to serve. The maonasteries of the begging orders were arranged otherwise than those of the rich and prominent Benedictines, and of those which prescribed eternal silence for their brothers, must provide conditions of habitation different from those permitting communication with the external world. Thus in the Monastery S. Marco at Florence, there are arranged small sleeping cells, scarcely as large as a modern prison cell, opening beside each other on a common corridor, and w which served for the dwellings of the brothers. In the great Carthusian monasteries (Certosa near Pavia and near Florence), small houses consisting of two rooms, a small porch, a stairway to the cellar, and a small garden, form a detached possession for a contemplative retreat, one being placed beside another and all grouped around a great sunny court (see the plan of the Certosa near Pavia[318] and Fig. 554, plan of the Certosa near Florence,[319] not perfectly trustworthy in all details). Remarkably well preserved in all parts, both monastery plans afford for us today a reliable representation of what the founders desired centuries ago. Likewise the third Certosa in Upper Italy, that near Pisa, is excellently preserved uninjured, with the Barocco gardens and fountains, and with its charming Renaissance double cloister with draw wells of the good period, and it is doubly and triply worth a visit on account of its magnificent surrounding landscapes. A Royal Girls' Boarding School is now sheltered there; yet the buildings are accessible with a guide and without further formalities. The small Renaissance cloister with the transverse portico in one story forms an architectural jewel.

Note 318. In Beltrami, Plate 8.

Note 319. Famin and Grandjean.

558 Among the great designs are to be reckoned S. Severino in Naples, S. Ambrogio in Milan, Monte Cassino and S. Martino near Naples with its splendid equipment.

If the difference between the dormitories has already been recognized as an important one, then is this extended to a h higher degree, if the little church of a most picturesque ly arranged, peaceful, entirely plain little Capuchin monastery on a wooded mountain height be compared with the stately church of the Carthusians on a broad plain. Poverty and little art on the one hand, wealth and the most refined art needs on the other; there walls washed white with wooden beam ceilings, clay tiles on the floors, simple tables as altars with wooden candlesticks; here wall surfaces gleaming with marble, gold, and precious stones and richly painted, lofty vaults, floors of mosaic and marble, costly sculptured wall-altars with magnificent paintings, tabernacles of bronze, candlesticks and crucifixes of massive gold and silver, reliquaries beset with precious stones, Easter candlesticks of the most perfect art forms, richly paneled sacristies, choir stalls with the most splendid carvings and intarsias, everything breathing of wealth and of high art(Compare Certosa near Pavia, indeed the most beautiful and richest monastery church in the world).

Thus here likewise were poor devils and rich nobles, who served the Lord God in the same faith and with the same inspiration!

How charming is frequently the little cloister wrapped in vine leaves, surrounded by porticos with bright flowers, a draw well or a jetting fountain in the centre, with the blue sky, sunshine and -- God's peace! Quite otherwise are the splendidly adorned and wide porticos of costly stone, the architecture supported by them being executed in decorated terra cotta (Pavia) or with varicolored glazed majolica (Certosa near Florence), -- frequently exhibiting the ripest work of the established masters.

Charming in Rome is the "cloister of a hundred columns" by Michelangelo in S. M. degli Angeli with the draw-well and the cypresses, centuries old, likewise that by Bramante in S. M. della Pace with its richer architectural motives, which in

their original conception present one of the finest works of the great architect of the High Renaissance. Interesting is the effect of the cloister of S. M. della Quercia near Bagnaja in the forms of the transition style (Fig. 7), then the different cloisters by Brunellesco at Florence, the finest of which is in S. Croce; or that with widely spanning arches and slender columns standing on masonry balustrades, of S. Lorenzo and in the Badia near Fiesole. Likewise the little cloisters in the Certosa near Florence, especially that narrow in ground plan with the small twisted columns of Ionic order set in the upper story, should not be omitted.

On Sicilian soil, the Benedictine Monastery in Catania offers a more academic solution in the plan. The Church is set like a cathedral in the middle of the plan, around it being grouped the buildings of the brothers of the monastery with a symmetrical arrangement of the cloisters (Fig. 555). After its completion, this Monastery became one of the largest of its kind. Begun, abandoned, taken up again and changed, then left unfinished, it shows all the changes in the good and bad taste of the artists, who were successively busied here for almost three centuries. The corner stone was laid
559 on Nov. 28, 1558, by the Viceroy Giovanni de la Cerda; the first plans were made by P. Valeriano de Franchis, a learned Benedictine from Catania. It was completed and occupied in 1578; 104 columns of Carrara marble were erected in 1605; an eruption of Mt. Etna caused great injuries in 1669; a new earthquake destroyed the beautiful cloister and the church, -- the cloister was abandoned. Yet in 1730, building was again begun, and the succeeding architects destroyed the unity of de Franchis' design, which we reproduce in Fig. 555. Hittorf is very enthusiastic and says in his work mentioned below:-[320] "One cannot help admiring the power of institutions, that create so many marvels," and concerning the stairway drawn by him (Fig. 556), he says:- "it faithfully represents that magnificent staircase", which may be termed conclusive.

Note 320. Hittorf and Van Zanth. p. 40, 41.

359. Buildings for Confraternities.

The buildings for the clerical brotherhoods (confraternities) were erected for the care of fellow countrymen in for-

560 foreign cities, for common benevolent works, or for purposes of devotion. They chiefly appear as "society houses" in a monumental form with frequently the richest treatment of the facades. The programme for the building comprised as a basis a great assembly hall or council hall, wardrobes for apparel and banners, with treasury and waiting rooms, and/a connected small chapel, or an altar against the wall in the hall.

These buildings are likewise found as oratorios in two stories (Siena), connected with a small or moderately large cloister, among the most charming of which belongs that of the brotherhood dello Scalzo in Florence with the frescos of Andrea del Sarto (Fig. 282), painted in gray on gray.

They increase in Venice to become an enclosed palace, which consists of a great lower hall and an upper hall of equal size with an altar, together with subordinate rooms and a grand staircase. The two finest examples in the city of the lagoons are the Scuola di S. Rocco and the Scuola di S. Marco. Both
561 exhibit magnificent facades with rich sculptures and costly marble veneering; they are built in two stories with a triple system of facade.

S. Marco exhibits one of the most costly marble portals, and with its three semicircular pediments, it is a decorative masterpiece of the first rank, that makes the Place before Ss. Giovanni e Paolo, with the equestrian statue of Colleoni and its graduated architecture towards the canal, one of the most interesting architectural creations in the world. Behind the "gay exterior" a "melancholy purpose" is now concealed: the building was erected in 1485 after the designs of Martino Lombardi, and it now serves as a hospital; notable in the interior are the three-aisled columnar hall with a wooden ceiling, the beautifully carved corbels with rich volute consoles above the nobly treated marble[322] columns and then the rich ceiling in the upper story.

Note 322. Published in Cicognara. p. 109 and Pls. 156-159.

The grand plan of S. Rocco (Fig. 557) likewise shows in the lower story a hall in three aisles with an altar wall, together with some administrative rooms, and then a beautifully designed stairway in three flights, that leads to the upper

story. Antonio Scarpagnino is mentioned as architect. The grand stairway was built in 1517 and the entrance gateway del Albergo in 1547.

The facade exhibits a horizontal terminal cornice. Its surface is subdivided into three spaces by 4 projecting columns, with broken entablature and cornice, which are decorated by double windows; those of the upper story are enclosed by columns supporting a pediment, whereby an animated play of light and shade is produced on the facade. An overrich piece of magnificence in its way.[323]

Note 323. Published in Cicognara. p. 199 and plates 190-195.

As small chapels, which are furnished with rich facades and must at the same time serve as places for assemblies, are to be mentioned the beautiful buildings of the Misericordia in Arezzo[324] and of S. Bernardino at Perugia.(See Fig. 425).

Note 324. Published in von Geymüller.

562. BIBLIOGRAPHY.

Books on Architecture of Renaissance in Italy.

a. General Works.

Alberti, L. B. De re edificatoria. Florence. 1485.
Alberti, L. B. L' architettura. Florence. 1550.
Alberti, L. B. L' architecture. Paris. 1553.
Palladio, A. Quattro libri dell' architettura. Venice. 1570.
Serlio, S. Bolognese. L' architettura VII Libri. Venice. 1584.
Scamozzi, V. Dell' idea architettura universale. In Piazzola VII. 1687.
Palladio, A. L' architettura. Venice. 1711.
Alberti, L. B. Della architettura, della pittura e della statua etc. Bologna. 1782.
Quatremere de Quincy. Geschichte der berühmtesten Architecten und ihrer Werke vom XI bis zum Ende des XVIII Jahrhunderts etc. Darmstadt. 1831.
Vasari, G. Leben der ausgezeichnetsten Maler, Bildhauer und Baumeister von Cimabue bis zum Jahre 1567. Stuttgart und Tübingen. 1832.
Vasari, G. Le vite de piu eccelenti pittori, scultori ed architetti. Florence. 1845-56 and 1878.
Gailhabaud, J. L' Architecture du V. au XVII siecle et les arts, qui en dependent. Paris. -- German edition by L. Lohde. Hamburg and Leipzig. 1852.
Burckhardt, J. Der Cicerone. Eine Anleitung zum Genuss der Kunstwerke Italiens. Basle. 1855.
Nohl, M. Tagebuch einer Italienische Reise. Stuttgart. 1866.
Burckhardt, J. Geschichte der Renaissance in Italien. Stuttgart. 1868.
Förster, E. Geschichte der Italienischen Kunst. Leipzig. 1869.
Burckhardt, J. & W. Lübke. Geschichte der neueren Baukunst. 2 d edit. Vol. 1. Stuttgart. 1878.
Gebhart, E. Les Origines de la Renaissance en Italie. Paris. 1879.
Janitschek, H. Die Gesellschaft der Renaissance in Italien und die Kunst. Stuttgart. 1879.
Holm, A. Il rinascimento italiano e la Grecia antica. Paler-

Palermo. 1880.
Symonds, J. A. Renaissance in Italy. London. 1880.
Voigt, G. Die Wiederbelebung des classischen Alterthums etc. 2 d. edit. Vol. 2. Berlin. 1881.
Geiger, L. Renaissance und Humanismus in Italien und Deutschland. Berlin. 1882.
Müntz, E. Precurseurs de la Renaissance. Paris. 1882.
Schütz, A. Die Renaissance in Italien. Hamburg. 1882.
Zeller. L'Italie et la Renaissance. Paris. 1885.
Lützow, C. v. Die Kunstschätze Italiens, in geographisch-historischer Uebersicht geschildert. Stuttgart. 1884.
Burckhardt, J. Die Cultur der Renaissance in Italien. 4 th edit. by L. Geiger. Leipzig. 1885.
Müntz, E. La Renaissance en Italie et en France a l'epoque de Charles VIII. Paris. 1855.
Thode, H. Franz von Assizi und der anfänge der Kunst der Renaissance in Italien. Berlin. 1885.
Redtenbacher, R. Die Architektur der Italienischen Renaissance etc. Frankfurt a. M. 1886.
Müntz, E. Histoire de l'art pendant la Renaissance. Paris. 1889.
Filarete's, A. A. Tractat über die Baukunst etc. Vienna. 1891.
Hauser, A. Stillehre der architectonischen Formen der Renaissance. 3 d edit. Vienna. 1891.
Palustre, L. L'architecture de la Renaissance. Paris. 1892.
Burckhardt, J. Der Cicerone. Eine anleitung zum Genuss der Kunstwerke Italiens. Edited by W. Bode. Leipzig. 1898.
Dohme, R. Kunst und Künstler Italiens. Leipzig. 1898.
Choisy, A. Histoire de l'architecture. Paris. 1899.

b. Special Works and Monographs.

Fontana. Della transp. dell' Obelisc. Vatican. Rome. 1590.
Costagutti, G. B. Architettura della Basilica di San Pietro in Vaticano. Rome. 1620.
Ferabosco, M. Libro de l'architettura di San Pietro etc. Rome. 1620.
Rubens, P. P. Palazzi di Genova. Antwerp. 1622.
Rubens, P. P. Palazzi antichi di Genova etc. Antwerp. 1663.

Fontana, C. C. Il tempio Vaticano e sua origine. Rome. 1694.

Rocca, A. De Tholo Basilicae S. Petri. Rome. 1719.

Sgrilli, B. S. Descrizione et studij dell'insigne fabbrica di Sa. Maria del Fiore etc. Florence. 1733.

563 Nelli, G. B. Piante ed alzati interiori et esteri dell' insigne chiesa di S. Maria del Fiore, metropolitano florentina. Florence. 1735.

Bibiena, G. G. Architetture e prospettive. Augusta, sotto la direzione di Andrea Pfeffel. 1740.

Zabaglia, N. Contignationes ac pontes etc. Rome. 1743.

Poleni, G. Memorie istoriche della gran cupola del Tempio Vaticano etc. Padua. 1748.

Rossi, G. J. La Libreria Mediceo-Laurenziana etc. Florence. 1755.

Vanvitelli, L. Dichiarazione dei disegni del Palazzo di Caserta. Naples. 1756.

Camporesi, P. Loggie di Rafaele nel Vaticano. Rome. 1776.

Tomassini, G. Il Tempio Malatestiano di Rimini. Foligno. 1794.

Palladio, A. Le fabbriche e i disegno raccolti et illustr. Vicenza. 1796.

Grandjean, A. de Montigny & A. Famin. Architecture Toscane etc. Paris. 1806 and 1875.

Percier, Ch. & P. F. L. Fontaine. Choix des plus celebres maisons de plaisance de Rome et de ses environs. Paris. 1809.

Ferraboschi. Architettura di San Pietro in Vaticano. Rome. 1812.

Cicognara, L. Le fabbriche piu cospicue di Venezia. Venice. 1815-20.

Suys, F. F. & L. P. Handebourt. Palais Massimi a Rome etc. Paris. 1818.

Pistolesi. Il Vaticano descritto ed illustrato. Rome. 1829-38.

Gauthier, M. Les plus beaux edifices de la ville de Genes et de ses environs. Paris. 1830.

Hittorf, J. & L v. Zanth. Architecture moderne de la Sicile. Paris. 1835.

Cassina, F. Le fabbriche piu cospicue di Milano. Milan. 1840-1844.

Opere architettoniche di Raffaelo Sanzio misurate ed illustrato dall'Architetto Carlo Pontani. Rome. 1841.

Gruner, L. Specimens of ornamental art etc. London. 1850.
Gruner, L. Decorations de palais et d'eglises en Italie etc. Paris & London. 1854.
Gruner, L. Fresco decorations and stuccoes of churches and palaces in Italy. London. 1854.
Isabelle. Les edifices circulaires et les dômes, considérés sous le rapport de leur disposition, de leur construction, et de leur decoration. Paris. 1855.
Arnold, F. Der herzogliche Palast von Urbino. Leipzig. 1856.
Runge, L. Beiträge zur Kenntniss der Backsteinarchitektur Italiens. Berlin. 1856.
Guasti, C. Le cupola di Sta. Maria del Fiore. Florence. 1857.
Letarouilly, P. Edifices de Rome moderne. Paris. 1860.
Stegmann, C. Ornamente der Renaissance aus Italien. Weimar. 1861.
Durelli, G. & F. La Certosa di Pavia, descritta ed illustrata etc. Milan. 1863.
Isabelle, E. Parallele des salles rondes de l'Italie. Paris. 1863.
Timler, C. Die Renaissance in Italien. Leipzig. 1865.
Lasius, G. Die Baukunst in ihrer chronologischen und constructiven Entwicklung dargestellt etc. Darmstadt. 1865-68.
Gruner, L. The terracotta architecture of North Italy. London. 1867.
Mylius, C. J. Treppen-, Vestibul- und Hof-Anlagen aus Italien. Leipzig. 1867.
Geymüller, H. v. Notizen über die Entwürfe zu St. Peter in Rom. Carlsruhe. 1868.
Peyer im Hof, F. Die Renaissance-Architektur Italiens. Leipzig. 1870.
Teirich, V. Ornamente der Blüthezeit italienischer Renaissance. Vienna. 1873.
Redtenbacher, R. Peruzzi und seine Werke. Carlsruhe. 1875.
Geymüller, H. v. Die ursprüngliche Entwürfe für St. Peter in Rom etc. Vienna. 1876.
Jovanits, C. A. Forschungen über den Bau der Peterskirche zu Rom. Vienna. 1877.
Santo Varni. Spigolature artistiche nell' archivio della Basilica di Carignano. Genoa. 1877.

Paravicini, T. V. Die Renaissance Architektur der Lombardei. Dresden. 1877-78.

Ronzani, F. & J. Luciolli. Les monuments civils, religieux et militaire de Michel Sanmicheli etc. Genoa. 1878.

Durand-Claye. Etude sur la stabilite de la coupole projetee par Bramante pour la Basilique de Saint Pierre de Rome. Paris. 1879.

Gmelin, L. Italienisches Skizzenbuch etc. Leipzig. 1879.

Laspeyres, P. Die Kirchen der Renaissance in Mittel-Italien. Stuttgart. 1881.

Simil, A. Le Vatican et la basilique de Saint-Pierre de Rome. Paris. 1882.

Reinhardt, R. Palast-Architektur von Ober-Italien und Toscana vom 15--17 Jahrhundert. Berlin. 1882.

Semper, H., F. O. Schulze & W. Barth. Carpi, ein Fürstensitz der Renaissance. Dresden. 1882.

Strack, H. Central- und Kuppelkirchen der Renaissance in Italien. Berlin. 1882.

Yriarte, Ch. Un condottiere au XV. siecle etc. Paris. 1882.

Raschdorff, J. C. Palast-Architektur von Ober-Italien und Toscana vom 13--18 Jahrhundert. Berlin. 1883.

Geymüller, H. v. Die Architektur der Renaissance in Toscana. Munich. 1885.

Boffi, L. Palazzo Vitelleschi in Corneto. Milan. 1886.

Durm, J. Zwei Grossconstructionen der italienischen Renaissance; (A & B; Florence & Rome). Berlin. 1887.

Gurlitt, C. Geschichte des Barockstiles, des Rococo und des Klassicismus. Stuttgart. 1887.

Wölflin, H. Renaissance und Barok. Munich. 1888.

Oettingen, W. v. Ueber das Leben und die Werke des Antonio Averlino, genannt Filarete. Leipzig. 1888.

Fabriczy, C. v. Filippo Brunelleschi. Seine Leben und seine Werke. Stuttgart. 1892.

Belotti, G. Villa dei Collazzi a Giogoli. Florence. 1893.

Beltrami, L. La Certosa di Pavia. Milan. 1895.

Ehrle, F. & E. Stevenson. Gli affreschi del Penturricchio nell' Appartimento Borgia. Rome. 1897.

Meyer, A. G. Oberitalienische Frührenaissance: Bauten und Werke der Lombardei. Berlin. 1897.

Pocceti, B. Decken-Malereien des I. Corridors der Uffizi zu Florenz. Berlin. 1897.

Santo Monti, D. La Cathedrale di Como. Como. 1897.

Condivi, A. Das Leben Michelangelo's. Munich. 1898.

Klackzo, J. Rome et la renaissance. Paris. 1898.

Barelli, V. Monumenti Comaschi collezione diretta ed illustrata etc. Como. 1899.

Malaguzzi Valeri, F. L'architettura a Bologna nel rinascimento. 1899.

Steinmann, E. Die Sixtinische Kapelle. Munich. 1901.

Wenz, P. Die Kuppel des Domes Santa Maria del Fiore zu Florenz etc. Berlin. 1901.

Durm, J. Grossconstructionen der italienischen Renaissance. (C & D; Pistoja & Genoa). Berlin. 1902.

Ferrerio, P. Palazzi di Roma de piu celebri architetti.

Gnauth, A. & E. v. Förster. Die Bauwerke der Renaissance in Toscana. Vienna. Lief. I, Pl. 1--VIII.

Ghiberti, L. Porte principale du baptistere de Florence. Paris.

D'Espouy, R. Fragments d'architecture du moyen age et de la Renaissance. Paris.

Herdtle, H. Mustergiltige Vorlageblätter zum Studium des Flachornaments. Stuttgart.

Maccari, E. Saggi di architettura e decorazione Italiana. Secolo XVI etc. Rome.

Maccari, E. Saggi di architettura e decorazione Italiana. Secolo XV, XVI, etc. Rome.

Maccari, E. Saggi di decorazione Italiana etc. Rome.

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HANDBOOK OF ARCHITECTURE

Part II

ARCHITECTURAL STYLES

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RENAISSANCE ARCHITECTURE IN ITALY

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hollow tiles radially in an entirely normal way. Thus was a
avoided in the simplest manner the costly covering with metal
sheets. This is a well considered technical procedure and n
not a caprice. The drum of the dome, that rises from the lo-
wer tiled roof is also plastered down to this, as well as the
wall surfaces of the entire building. The columns of the fo-
ur porticos are likewise covered with stucco, the fronts of
445 the architraves are faced with thin stone slabs, the segment-
al vaults of the porticos are of wooden laths and are plaster-
ed. The strings and steps of the flights of steps are again
of stone. Two of the stairways in the dead angles of the ro-
tunda are oval and of stone, self-supporting, furnished with
simple iron railings and lead from the ground floor to the a
attic. The two others were closed to me at my visit. These
stairways receive their light through the small windows above
the entrance doorways to the circular hall. The internal ro-
om in the ground story beneath the rotunda likewise receives
its light and air through the rotunda. In the middle of its
floor is inserted a great perforated stone slab, which is ad-
orned by a flat carved faun's head, whose eyes, mouth, nostr-
ils, ears and hair are perforated, thus making possible the
admission of light.

Besides the rotunda, the adjacent rooms are very well trea-
ted. Worthy of consideration are the ceiling paintings at t
446 the vaulted entrances, executed with cupids and female figur-
es scattering flowers, kept in the style of the paintings of
the circular room. Other rooms are covered by trough and tun-
nel vaults, and exhibit the style of Giovanni da Udine, or as
they are treated in the Villa of Pope Julius at Rome. Doorw-
ay enclosures of white limestone with inlays of Veronese mar-
ble, great fireplaces of the same material, in part with add-
itions of stucco; majolica and clay tile coverings of the fl-
oors still exist. Simple but handsome in treatment are also
the small rooms in the half story. With the necessary furni-
ture, carpets, hangings and lighting fixtures, these make the
building actually habitable. The cellar affords space for k
kitchen and housekeeping in abundance.

But it should not be forgotten, that the Rotonda is not an
architectural work by itself, but that it rather possesses e
extensive and well preserved additional structures for impor-

important farming purposes, which were closely connected with the nobleman's residence.

On account of purely theoretical investigations and researches, as to what Palladio conceived or could not have intended in this design, or what omissions may be attributed to him or another, men have forgotten to understand the plan of the whole as a country house with agricultural purposes.

It is singular, that Goethe in his letters of 1786 he does not express himself at all concerning the internal decoration, which is still not bad. Bertotti (Scamozzi) in his work of the same year 1786 at least mentions the paintings and the figure ornament, and says openly and honorably of the decoration. -- "And ornaments that scarcely harmonize with the good taste of Palladio." The proof that the "ornaments" do not date from t the time of Palladio had already been given. But Goethe must have seen them, which does not appear to have been the case with the new investigator of Palladio. I cannot thereby establish any relations between his and Goethe. For a judgment of the location of the building, the latter refers to the detailed description of Palladio, in which he justifies the peculiar form of the structure. O. Bertotti puts this in the following words:-- "A pleasant hill with gentle and easy slope, on which this house must be erected, harmonized perfectly with the charming situation of the place. To arrange for the occupants the entrancing outlooks formed by the views of the surroundings, he built the house in a square form, he erected porticos on each front, and then seeking to combine convenie-
448 nce and decency in the interior, he made a circular hall in the middle of the building, surrounded by four rooms with as many cabinets, which have their entrances and exits in the v vestibules leading from the porticos to the hall."

But all this gives no idea of the location of the building in the grounds, all of which must be created, and whereon all publications, even the most recent, afford no conclusions.

A broad road of access now leads to the entrance gateway, which one may likewise reach by a narrow footpath from Monte Berico. [160]

Note 160. Our guidebook indeed states, that one should turn there, since access to the villa is forbidded, which some visitors have noted. But the present owner has permitted for-

foreigners for more than a year, and has even provided a book for the registration of visitors.

A gently inclined ramp leads between the walls of two service buildings to a small terrace supported by high retaining walls, whose substructure is utilized for farming rooms, above which rises the residence. The old Italian rule requires the preparation of an inclined site in one or more terraces
449 for the reception of buildings with a free outlook around them. Men did not desire to conceal themselves and the building behind neither shrubbery nor protecting walls. A single terrace sufficed; it is of irregular form, of small extent a and enclosed by a parapet wall. There is no place for garden designs in the grand style, and it was not desired to restrict the view by high trees, so that supporting walls descend steeply. The exterior of the residence is placed close to t the parapet wall, being only 6.6 ft. from it. The area at t the angle of the house overlooking the valley has become thereby a sort of farm court with a draw well -- the only water supply up there. My small sketch in Fig. 359 gives a view of the location from Monte Berico, and it shows the combination of the farm buildings, terraces and retaining walls with the nobleman's residence, and must be more instructive for the j judgement of the whole, than the "academically drawn" plates of the gentlemen, who onesidedly engage in architectural history and architectural esthetics. That those plates also do not here agree with the structure in reality, need not be further emphasized. The example of a building is not always so clearly worked out and so simple, as it seems in the minds of outsiders, and certain things must one have suffered, passed through and experienced in his own life. Of what use are the most beautiful deductions, if they are based on uncertain or even false grounds? The helical covering as a roof over the circular hall is an error in all drawings, as well as the form of the mezzanine windows.

238. Villa Foscari.

In a similar sense must be considered the Villa of Francesco Foscari, located on the Brenta and completed by Palladio
450 in 1560, judging from an engraving of Costa. Likewise at th-
451 is the farm buildings were erected in the immediate vicinity, being very closely connected with the residence. The Ionic

portico with its two flights of steps facing the bank of the river, belongs to the most dignified and noblest, that Palladio created, and if the pediment-shaped addition to the roof were placed directly over the gable of the portico, the facade must be regarded as perfect. (See in Burger the plan and elevation on Plates 31 and 32; O. Bertotti (Scamozzi) Vol. 3, Pls. 1 - 3, and from these, Fig. 364.

Only from the engraving mentioned do we know, how the residence must be considered in connection with other places and with its nearest surroundings. The cold architecture suddenly receives flesh and blood.

239. Villa Pisani.

On account of the mode of combination of farm buildings and residence and the strictly symmetrical grouping of both produced thereby, and by the annangement of arched passages and driveways is specially interesting Villa Pisani near Montagna, begun but not completed by Francesco. (See O. Bertotti - Scamozzi, Pl. IX,.Fig. 365).

452 By the peculiar treatment of the entrance as an arched portico and the omission of the antique pediment, Villa Pojana should not remain without mention. (See F. Burger's Plate 37, photoprint of plan and elevation, also Fig. 367, an extract therefrom).

240. Villa Pisani near Bagnolo.

Fig. 366. Gives a representation of the form of plan of Villa Pisani near Bagnolo, with middle hall, loggia and portico. Adjoining the portico at right and left extend other porticos, which enclose the forecourt. The middle part of the main facade with the small flanking towers and the adjacent porticos are represented in Fig. 367.

241. Villa Trissino near Meledo.

Located on the Brendola southwest of Vicenza may still be conceived Villa Trissino, that had it been completed, would indeed have been the most beautiful villa of Palladio. Begun in the year 1570, the work soon came to an end and did not go beyond the substructure. The foundations for the residence were not laid, and its existing arrangement of plan has nothing to do with the plan of Palladio. It must have been an e
453 extension of the ground idea of the Rotonda, with the similar circular hall covered by a dome, whose walls were to be ador-

adorned by Corinthian half columns intended to support a gallery. On two sides were projecting temple porticos with steps before them, on the other two sides being planned included loggias as temple fronts with four columns.

Figs. 368 to 370, according to O. Bertotti-Scamozzi, give the plan of the villa, unfortunately again without the addition of the arrangement and the nearest surroundings. Entrance is made by a great flight of steps and by two side stairways, which lead to quadrant-shaped covered columnar porticos closed at the rear. From thence one ascends a continuous flight of steps to quadrant-shaped gardens, connected together by a horizontal space and combined in an area to be animated by
454 fountains. By this was determined the height of the terrace for the residence, that rose above a high base just as at the Rotonda, and must be reached by 4 flights of steps. The plan forms a rectangle, before its longer sides being placed porticos, by which the facade mentioned would be divided into three approximately equal parts. This equality of the parts h has an unfavorable effect, since no part dominates. The roof is heavy, the crowning dome on it is undivided and appears m massive, and the lantern with the small figures is unskilful.

However simply great may be arranged the development, it s suffers by these defects in proportions, which however are avoided at the ends. The fronts of the retaining walls of t the little quadrant gardens at the right and left of the middle flight of steps must have been calculated for effect of surfaces, thus being without any architectural subdivision; in any case they were reserved for plants or trellisses. At the top of these and commencing from the same terrace and at each side adjoin at a right angle covered porticos conceived with farm rooms lying behind them, and which terminate with structures like towers. Between both should have extended a closing wall with an entrance portal. The section in Palladio's plans (Vol. 3. Pl. 6. Bertotti-Scamozzi) gives us the k
455 key to this explanation, but not to the arrangement of the g gardens there. In any case as at the Rotonda, it was desired to have a free outlook over the surroundings from the porticos and loggias, and therefore high trees were dispensed with economically. Men also did not desire to conceal themselves here in shrubbery. On the other hand, I do not conceive the

great level front garden as graveled or as a lawn, and also that enclosed by the quadrant porticos. The site chosen by the owner recalls that arranged at the Rotonda by the architect, where just behind the residence the ground falls steeply. Burger (p. 150) must have represented the character of the architectural design in his birdseye view, if one omits from the representation the gardens and landscape.

242. Villa Badoero.

To the great example of Meledo the Villa Badeoro in Fratta Polesine approximates in the general design and in appearance, with the omission of a domed roof. On the elevated plateau stands the master's residence, up to which lead dignified flights of steps. On its middle axis lies the hall to which a are attached the side rooms. The middle portion is characterized on one side by a projecting portico adorned by a pediment, on the other side by an included loggia. Low porticos in semicircular form enclose the lower front garden, behind these being placed small farm courts and buildings (Fig. 371).

456 243. Villa Valmarano.

In a grander style and extending through two stories rises the loggia with columns and the principal facade of Villa Valmarano, adorned by a great pediment. Directly behind the loggia is found the hall, that is flanked on both sides by two stairways and small subordinate rooms. On the exterior these are treated as plainly as possible, but just in this way pro-
457 duce a quiet foil to the rich middle portion (Fig. 372). No how surprising motives are in these villa structures of Palladio, and still is the absolute rejection of all caprices, which was not always done with the old forms introduced. Yet certainly nothing but good. The same way is also still open to the moderns.

458 244. Hunting Villa La Magliana near Rome.

After urban and suburban villas are yet to be mentioned the hunting villas, that as a species were already known in the Roman region.of the Moselle. Here it is the papal hunting Villa La Magliana near Rome, that interests us and is taken as an example. It was no splendid design for an expensive c court life, but rather served the princely hunters and their attendants for a temporary stay. On a site of elongated form are enclosed a court, walls, living and service buildings, w

which are preserved for the greater part. The wall at the e
entrance side is still armed with battlements. The form exp-
459 ression of the residence is very simple; door and window enc-
losures are of travertine, the wall plastered, a rafter corn-
ice with painted frieze, a triple arched portico with piers,
above it being windows with stone crosses and the papal arms
of Innocent VIII and Julius II. In the interior are tunnel
vaulted larger and smaller rooms in two stories. The facade
of the ground story is subdivided by Doric pilasters and bli-
nd arcades, above these being a continuous architrave, a high
and plain frieze, that ends with a thin parapet cornice, on
which directly stand the stone cross windows -- pleasing on
the whole.

Fig. 373 gives the plan of the building after the beautiful
drawings of the deceased architect F. O. Schulz, Rome, in Ze-
its. f. Bauw. 1895, with the addition of a good architectural
text.

245. Garden, Park and Terrace Plans of Villas.

Garden, park and terrace designs with shady alleys, fishpo-
nds, fountains, water reservoirs (collecting basins), cascad-
es, grottos, ramps and flights of steps are designated as ch-
aracteristic additions to Renaissance and Barocco villas, occ-
asioned by inclined or terraced building sites, that extend to
an elevated plateau with a beautiful and free point of view
toward three or four points of the compass, generally then l
lost in an elevated forest. There the villa, i.e., the resi-
dence, as already stated, either forms the end or the starti-
ng point of the plan. In the last case, there is developed
a front garden around or before the villa, then follows a mid-
dle garden with colonnades, shrubbery, artistic water works,
on which open the garden salons; then the way leads over ram-
ps and steps to the elevated garden, that finds its terminat-
ion in the outlook plateau or ends in shrubbery and a park.
That the villa forms the terminal point, then the gardens wi-
th all their artistic objects lie before it, as it dominates
the outlook and is the highest aim for the occupants and vis-
460 itors. (Examples; the Genoese villas). A third mode of arran-
gement is not excluded, where ornamental and useful gardens,
residence and service buildings lie on the same level, such
as the villas and gardens of the plain, as for example, the

case in Mantua, at Villa Ludovici, Vill. Borghese and Villa Pamphili-Doria in Rome, there in a moderately hilly country, in which the art is striking, with which the arrangement of a regular garden is connected with rural nature, which even forms a part of the arrangement. Likewise Villa Albani in R Rome with its elevated and its sunken gardens must be counted here. These are symmetrical designs, yet without monotony. Serlio also makes suggestions for such (Fig. 374).

246. Show and useful Gardens, hedged Paths and natural Theatres.

In the Barocco period the useful garden was usually removed from view, and the development of artistic water courses on a great scale was added. The show garden stands in sharp contrast to the remainder. For indicating the service buildings a fir thicket is more generally preferred. The strong combined effect of the mass of the vegetation, its united effect w with terraces, steps, ramps, etc., can first appear "when the garden is large and the esthetic principles of its arrangement are fully developed." (See J. Burckhardt, p. 244).

What we are surprised at today did not exist, even as little as the existing plants.

461 247. Cascade Scenery.

Instead of the show garden frequently appears later the garden architecture, for example, the race course (hippodrome) in Villa Borghese before Rome, the natural theatre in the Boboli gardens in Florence, adorned by niches and statues and furnished with stone seats. Then also great lawns with vases and statues, (Villa Pamphili-Doria, Rome); further hedged paths with hermes (Villa Medici, Rome), and stately alleys of laurel and cypress trees, detached groups of evergreen oaks between broad meadows, great avenues set with 4 to 6 rows of great shade trees (Villa Pamphili-Doria, Rome). Here should yet be mentioned the cascade scenery (Fig. 375), for example, as executed in the palace part at Caserta (begun 1752), and the flower beds with ornamental patterns, as well as the clipped box trees, interesting animal and human forms. If it be regarded at the same time as the problem of the art of gardening, "to treat artistically nature around our dwellings, and to adapt it to the refined needs of the residence, the impossibility will result, to describe the character of the Italian

Renaissance garden, without going into the general geographi-
cal and climatic conditions of Italy and the plants thereby
required. (See W. P. Tuckerman, Die Garten Kunst of the Ital-
ian Renaissance Period. Berlin. 1884.).

What is offered to us in the garden designs of the old and
new villas in Italy, on the lakes of upper Italy, on the Riv-
iera, near Naples (Fig. 377; arrangement of Villa Nationale),
and in Sicily, forms a combination of the plants of the trop-
ical South with the northern vegetation, it is the result of
the acclimations of the most varied zones beside each other,
what we should feel to be truly Italian. Mexico, Brazil, Af-
rica, India, Japan, Asia Minor, America and Australia have b
462 bestowed opuntia cactuses, Indian figs, palms, oil plants, a
aloes and American agaves, sugar cane, papyrus, rice, eucalyp-
tus, cotton-trees, araucarias, etc. Likewise laurels, myrtl-
es, orange, pistacio and olive trees belong to a distant nit-
ive land. Plane trees were first introduced at the time of
the republic in Italy, and must not be confused with maples,
at least with the American, frequently employed in Europe for
avenues bordered by trees. (See Kulturpflanzen und Haustiere
in their transfer from Asia to Greece and Italy, as well as
to the rest of Europe, by Victor Hehn. Berlin. 1874). Cork
and stone oaks, stone lindens, Turkish oaks, chestnuts, beech-
es, pines, firs and spruces, heather, lavender, rosemary, th-
yme, ivy, etc., are contrasted with those.

The old Italian Renaissance took its materials for gardeni-
ng from the native plants, and therein lies the chief charm
of its designs. The villas around Rome have still most faith-
fully retained their original character in the garden designs,
such as stone oaks near Frascati (Fig. 378), pines and olives
near Tivoli (Figs. 318, 319), and the cypresses of Villa Fal-
conieri Frascati prove. Besides the cypresses of Villa d'Es-
te, those on the ascent to to San Miniato and Villa Giusta in
Verona, those in Villa Falconieri have become famous (Fig.383).
The arrangement of this was conceived in 1546 by Cardinal Ruf-
fini, the residence being designed and erected by Borromini.
The building is animated in treatment, and in the upper story
is employed the effectively arranged semicircular niche of B
Bramante (Fig. 314). Its fame penetrated into German circles
through Mendelssohn-Bartholdy, who purchased it in 1905, and

gave it to his majesty, the German emperor. On account of i its location in the midst of fine groups of trees, should al-
463 so be given a view of the porter's lodge of the villa, (Fig. 379), and for the same reason the enclosure of Villa Aldobrandini at the same place, on account of the clumps of trees. (Fig. 380).

Otherwise the gardens must likewise here follow the course of time, for only the living have rights! Yet what do the d dead teach us?

248. Serlio and L. B. Alberti on Garden Designs.

Serlio,(Book IV, Pl. 198) is of the opinion, that gardens to some extent are also an ornament to the buildings, and he makes four suggestions for certain parts thereof, one of which is reproduced in Fig. 374.

Leon Battista Alberti approaches the subject somewhat more nearly in the book on the Art of Building, where he not only expresses himself on the plants and their uses, but also a
464 little further on the purpose of the Villa, its equipment and treatment; also on the location of art objects in garden designs.

In Chapter 2 of Book IX, "On the adornment of City and Villa edifices," he says to us, quoting Martial: -- (see text). Consequently a life of gormandizing! He requires the villa to be not far from the city, in a beautiful country and magnificent gardens, with sufficient land, meadows rich in flowers, open fields, in the shade of fresh forests with clear springs and brooks, supplied with everything, that pertains to the pleasures and needs of such a residence, open on all sides and good air. Square and circular rooms should alternate in the interior, and he desires convenient stairs for connecting the stories.

In Chapter 4 (Book IX;-"With what paintings, prints and s statues, by which should be adorned the private house, floors, loggias, the other rooms and gardens") further good advice is given, from which we shall take only that on gardens.

Alberti desires the walks to be bordered by evergreen plants, box, bilberry bushes, laurel and ivy, with cedars and junipers, according to their sunny or shaded localities. He approves of a citizen of Agrigente, because he placed 300 stone vases and 100 amphoras in the garden. A grand ornament

would be the use of fountains. He further tells us, indeed
465 for imitation, that the ancients protected their walks by vine trellises (pergolas), whose supports consisted of marble columns of the Corinthian order.

Rare and medicinal plants should be cultivated, and he praises a custom of the gardener to plant the names of their masters in letters of box (Pamphili-Doria, Rome); as hedges are mentioned rose hedges with pomegranate trees or cornel cherries connected together; stone oaks, plum trees, thornbushes
466 for meadows. (See text). They create meadows for the herds, shade for the masters! Statues, that incite laughter, but w which must not be indecent, Alberti desires to have exhibited.

For the loggias of great men, he gives preference to the horizontal entablature (architrave, frieze and cornice), but small people should be satisfied with arches on columns. He wishes for villas and also for private houses, no pediments, towers or battlements. Galeries (attics) should be "graceful," but not too large.

On the flora depends the fauna. One must also supply the native butterflies and leaf-gatherers what they require from nature, and plant the garden accordingly. The bird catchers alone have not ruined the gardens and grounds in modern Italy, and deprived them of singing birds. I have still heard many beautiful songs there, where the modern gardener has not come.

249. The Pergola.

The costly villa designs --, house, court and garden -- are mostly protected from intruders and unauthorized visitation by simple enclosing walls, whose internal sides are covered by trellises and shrubbery, or even by more richly treated a architectural structures, iron grilles and gates, artistically and yet securely enclosed. (See the front gardens of the Barberini and of Villa Aldobrandini in Frascati, and other pla-
76 ces. Many of these are creations of later date((Fig. 380), w which in the front garden of Palace Barberini at Rome dates from the year 1866, according to my sketches).

A higher expression of architectural treatment is made by the shaded walks (pergolas) mentioned above, that are particularly extensive at Genoese villas, and are artistically perfected. A charming example is given by Fig. 381, the pergola of the Palace of Prince Doria, 426.5 ft. long and 16.4 ft. w

wide, which is attributed to Montorsoli. The fluted Doric c columns are of white marble and support wooden rafters, that are covered by grape vines. The colonnades are interrupted by compound piers. Between these are placed beautiful ornamental vases.

More simply treated on the other hand is the entrance pergola of Villa Albani, but like the former is covered by a polygonal structure of rafters. Likewise gardens of monasteries
468 are frequently finished with these shady promenades. (Certosa near Pavia and others with stone Doric columns and horizontal wooden beams. (Fig. 382).

250. Water Theatres.

Reference in this place should be particularly made to the semicircular "water theatres" in the grounds of Villas Aldobrandini and Mondragone near Frascati (Figs. 383, 384).

251. Casino.

Of the casinos or little coffee houses, buildings erected separately as small intimate structures, are to be mentioned as especially handsome works, those in Caprarola, in Villa A Albani near Rome, the Casino in Padua and others in the villas of Genoa. That first mentioned merits full recognition on account of its classic simplicity, also in its facade. The great casino in Villa Borghese was previously mentioned (Fig. 387).

252. Bath Pavilions.

But besides these small buildings also occur yet others detached, the bathing pavilions, for which as an example may pass the charmingly painted one in Palace del Te in Mantua -- the little structure near the exedra of the garden.

In the French and German Rococo time, these play a greater part with the most splendid equipment of the interior, for example, in the pavilions in the palace garden at Nymphenburg near Munich and at Schwetzingen.

253. Garden Vases.

But Serlio also now gives us starting points for the form of vases, that are to be exhibited in the open air, and that have an important effect on account of their simplicity of form. He likewise gives rules for their construction (Fig. 389); Fig. 390 shows us a magnificent colossal marble vase from the antique Roman period, that indeed once adorned a st-

state garden as a public place, and was still exhibited in 1 1866 in the court of the Monastery of Ss. Apostoli in Rome, and must also have found indeed many admirers in the golden time of the Renaissance.

254. Garden Fountains.

Of its art invention, of good taste and correct understanding, for executing certain works of monumental and minor art,
469 proof is afforded by the small and moderately large garden or park fountains. Even the most extensive literature could not comprise everything beautiful and perfect accomplished in this by Italy in the Renaissance period. We must content ourselves with the statement, that not a park or garden design of that time can be conceived without such, and which are then transferred to the public squares and the palace courts of t the great. Figs. 388, 391 and 392 may give starting points and at the same time the proof, that we still always depend on the good, old and beautiful in our art designing.

470 SECTION XV. THE HOUSES.

Home of the Artisan, Merchant, House with Shops, House for use or rent, simple House for rental, Filarete's House of Virtue and of Vice, Artist's House, location of living rooms.

"A very poor man is joyful, if only he finds a roof. In a any case is he satisfied with a cabin 19.5 × 23.5 ft. without internal divisions."

Filarete's Treatise on Architecture. Book XII.

What Filarete here says was already true long before him, and will also be true still further, so long as poor devils are on the earth. In his ideal city of "Sforzinda" he also desires to furnish a home for the artizan, the merchant and the artist, and he establishes the following special architectural programme for the dwellings of these classes of occupations.

255. House of the Aatisan.

For the house of the artisan is sufficient a ground area of 58.7 × 97.8 ft., where the end must be next the street. 161 From this a passage leads through the ground story into the middle, where on one side is a workshop with storeroom behind, on the other lying the dining room. On the narrow little court behind the house is the shed for wood and chicken coop at one end, the kitchen with the vaulted cellar beneath at the other. If the building be erected in two stories, then in t the upper story will be arranged in front a hall with a chamber, and two other rooms next the court. "Yet since by this arrangement 47.0 ft. in depth is required, then this story m must project about 7.8 ft. beyond the lower one; this occurs next the street, so that the workshop has a projecting roof." Along the court side must extend a gallery, on which washed clothing may be dried. The garden must still have a depth of 39.0 ft.

Note 161. According to Engineer A. Tacchini, Milan, 1885 (La Metrologia Universale) the Italian units of measure expressed in ft. are as follows:--

Bracchio of Florence =	1.915 ft.
Bracchio of Milan =	1.952 ft.
Bracchio of Modena =	2.078 ft.
Bracchio of Pavia =	2.037 ft.
Palmo of Naples =	0.2645 m.

Palmo of Palermo = 0.2580 m.

One braccio of Rome = 3 palmi of Rome = 0.670 m.

Since Filareteis silent concerning the stairway, it may well be assumed, that he placed no great weight on its treatment, which may also be justified by the small proportions.

256. House of the Merchant.

The house of the shopkeeper Filabete already conceives as somewhat more important, for he first assigns it a larger site of 93.0 × 293. ft. He recognizes a forecourt, enclosed by a colonnade next the street, bounded on two sides by wings a and on the fourth by the dwelling. Before each wing is placed a colonnade for display of wares; behind these must be found writing and sales rooms, as well as storerooms.
471 He likewise places a columnar portico before the dwelling, through which a middle passage leads to a second court, which is only separated from the garden by a colonnade. In this second court the side wings contain in the ground story servants' rooms, kitchens, bakeries, etc., while only the main b building has a cellar beneath it, in its ground story being provided a hall and two rooms for guests.

In the second story is then found a hall with a room at each end; of similar plan is the story lying above this. The second stories of the wing buildings each contain two chambers. The flat roof of the portico on the street serves as a balcony, and is occupied by fragrant plants. "Care is to be taken for conveniences of all kinds," whereby indeed is also meant the stairs, about which Filarete also says nothing here. The main doorways and the windows take the proportions of 1 to 2, the others that of 1 to 1 1/2.

The design with the forecourt, the display of wares, the b balcony covered with flowers, the location of the dwelling retired from the street traffic, the variation in height of the different portions of the building, are indeed charming things; but that a merchant of the middle class ever built thus, can scarcely be assumed.

We further know, that the great merchants and manufacturess were not satisfied thereby (see the Medici, Rucellai and others), and that small dealers lived near the great in rented
472 houses, exactly as in classic antiquity and as still today, just as we know.

Where possible in any way, for house like palace architecture the plan of the antique house was taken as a basis, and the same ingenuity in holding fast to the basal idea on an i irregular site, for example in Pompeii, also appears in the time of the Renaissance.

A little court with or without passages and a good stairway are again found everywhere, when the rooms next the house were rented for shops or were used as stables, carriage rooms and the like, as this is shown by the ground plans of dwellings in Via cinque Lune, on Place Madama and in Palace del Bufalo in Rome (Figs. 395, 396).

An omission of the court was attempted by Bramante at the five story house in Via del Governo Vecchio at Rome (Figs. 393, 394), where the site must be utilized to the extreme, a and which gave opportunity for an unusually high building in stories, in proportion to the dimensions of the ground plan.

257. Dwellings with Shops.

The merchant's house, or better said, the house with shops found its definite architectural expression in some Roman palaces and dwellings, where to the shops almost always was added a half story, that served for storerooms or as a rented d dwelling for the dealer, while in the story above this, "the noble story," first commenced the residence of the owner.

473 A noble example of this kind was given by B. Peruzzi in his Palace Costa in Rome (Fig. 397), where the openings to the s shops yet show the moderate clear width of 7.8 ft. with a low height; for the horizontal covering the preference was given to the straight arch -- entirely after the antique method.

An allied solution is shown by a house in Via del Governo Vecchio, likewise in Rome, but on which the openings to the shops are made wider (Fig. 399).

The endeavor to make the stall as wide as possible in the time of increasing wealth with increasing activity of the dealers, and the growing endeavors to attract the buying public, already existed as today, and it then as now found its special expression on the facade. Shop openings of nearly 13.2 ft in clear width, covered by loaded horizontal ashlar arches a are also quite conspicuous in our time, in which houses with shops have the house set on "stilts", and the great openings in the masonry facade in the ground story are obviated; but

they are still acceptable and do not lose the static feeling, since they are again separated by bold rusticated ashlar piers, and also the upper limit still retains the character of strength and firmness.

What may be dared with well constructed and correctly calculated horizontal arches up to 12.9 ft. span is shown by Fig.
474 399, where the middle is loaded by the window pier extending through all the stories, and also by Fig. 400, Palace Nicolini. Giulio Romano adhered to the but slightly lesser clear width of 11.1 ft. for shops in his Palace Cicciaporci in Rome (Fig. 401),and as better after the antique models (Theatres in Ferento, Taormina and Rome) to relieve the horizontal arch by one of semicircular form, including the mezzanine window within this as an effective architectural motive.

258. House with Shops with the Master's Dwelling in the upper Story.

Raphael proceeded similarly with his own house in Rome, where the shops and the mezzanine were externally combined into one story. Above the rusticated facade constructed of bricks and stucco rose the palace architecture of the upper story, animated by coupled half-columns with its Doric main cornice. Aside from the deception in the building materials, we have to do here with a composition, that also strikingly expressed its purpose externally (Fig. 402).

259. Dwellings and Houses for Rental.

Besides the business houses for artisans and shopkeepers w were erected dwellings or houses for renting to officials, artists, learned men, small renters, etc., either as necessary
475 structures of the usual type or as artistic buildings with t the cooperation of architects, where the best efforts of the trade were not lacking to these works, and it was sought to win for them an artistic appearance.

The House of the notary Sander in Rome, like most of this kind, built as a house with three windows, gives evidence of this and the proof, that even a dwelling may become a monumental art work, if one proceeds with earnestness, spirit and t taste. The good proportions of the windows with their beautifully moulded enclosures and the splendid sgraffito friezes below the window sill belts, the finely considered contrasting effects of openings and masses here create a model and are

faultless, but still artistically important facade of a dwelling.

Charming examples of such houses with three windows are given with a somewhat greater expenditure by the facades of the so-called palace Serristori in Florence, built by Baccio d' Agnolo, and those of Casino di Livio by Buontalenti there ((Figs. 403, 404), where the overrich ornamentation of the Early Renaissance is avoided. Buildings are never finer than t their occupants.

The so-called House of Palladio in Vicenza, E likewise reckon with these happy creations. In this place must also be mentioned the little houses indicated by Burckhardt;[162] that not far from the Basilica, built about 1481 and still half G Gothic, on which is visible the motto:-- "No rose without its thorn"; Then House number 1944 with the motto:-- "All things pass on, return, nothing is lost"; and number 1276, "as a remarkable attempt to be monumentally imposing in even the smallest dimensions".

With reference to Burckhardt's "Cicerone" (edition of 1860) are still to be mentioned:-- in Padua, the so-called House of
476
477 Tito Livio (Palace Cicogna), a small building; in Ferrara, t the simple House of Ariosto (Strada Mirasole no. 1208); in B Bologna, the capriciously beautiful corner House No. 496, Via delle Grade, and different ones on Place S. Stefano; in Bergamo, House Maffei with its elegant little court (Fig. 406), that is surrounded in the ground story by a colonnade with architraves, in the upper story by an arched portico, and also in Bergamo, the House Fogaccia, a three story building, t the stories subdivided by pilasters, the uppermost story characterized by a loggia.[163] This House is located at No. 11 V Via Gaetano Donizetti, is of dark marble with inlays of red Veronese marble disks, recalls in details Palace Communale in Brescia, and is of extraordinary beauty with the most refined profiling of the cornices. Sometime since a restoration was undertaken, and after the completion of this, it may be taken as one of the most prominent private buildings in upper Italy.
478 In the narrow street the chosen palace motive for this house with three windows is not disadvantageous. This building of small dimensions also has an entirely monumental effect. As architect is designated Pietro Isabello, called Abbeno.

Note 162. In Der Cicerone, etc. 1 st edition. Basle. 1860. p. 224.

Note 163. Those houses at Bergamo, as well as those following in Brescia and Milan are published in Paravicini, T. V. Die Renaissance Architektur der Lombardei. German edition by R. Keppel. Dresden. In giving names of streets and numbers of houses it should be noted, that these also in Italian cities are subject to constant changes, and therefore statements in this respect are not always reliable.

Bergamo contains in its older portion an abundance of small houses of all kinds and of all phases of Italian Renaissance art. Charming ones are furnished by the transition style with trefoil windows in the upper stories, beneath these being continuous painted friezes with foliage, medallions and cupids. Interesting appear some houses on Via dell'Arena in the vicinity of the Cathedral, with entirely painted facades. T The ground story with ashlars painted gray on gray, in the u upper stories being simple rectangular windows on continuous window sill belts, the window enclosures also particularly accented by paintings, the wall piers animated by painted figures in niches between painted columns, where the figures are yellow as well as the capitals, the shafts of the columns treated as if made of variegated marble, and beside them being painted loggias with rich perspective views; we further meet with half timber houses on a stone ground story, the external walls of the upper story resting on projecting beams with wooden caps, now plastered white on the exterior, formerly indeed exhibiting the wooden framework, the example of a half timber house built at the foot of the Alps under Swiss influence, without any art forms. Then we enjoy the interiors of such houses with the charming little courts surrounded by arched or horizontally covered porticos in the lower or upper story, often picturesquely overrun by green vines and adorned by orient flowers.! They are dwellings of modest style but are charmingly beautiful.(Figs. 405, 407; little courts of houses at Nos. 72 and 104 Via Pignolo in Bergamo).

But this external colored ornamentation must also not be f forgotten on dwellings in Vicenza. One first learns from this point of view to first correctly appreciate and understand the master Palladio in his simpler creations. His small House

with two windows indeed has something strongly classical in effect in the drawing; but one thinks of the added color decoration, that may well be restored from the vestiges on the
479 building; the shrine between the Corinthian pilasters of the upper story contains a large figure composition painted in f fresco with bright colors, and similarly the rectangular area above it in the attic story, the little windows beside these surrounded by cartouches and grotesque ornamentation, the parapet frieze beneath and likewise adorned by paintings, as well as the simple and great rectangular windows also surrounded by paintings. The same complete ornamentation of the facade surfaces was also borne, according to the still remaining vestiges, by other palaces of the same master in the city, n now appearing to us as too dry or too simple, which could only be correctly understood and judged with this ornamentation.

In Brescia is to be mentioned the three story House Bolognini with beautiful portal, rectangular windows and peculiar lacework and ball ornaments on the surface of the facade in the third story, in Milan a House in Via Torino with a pretty columnar court and the broad window enclosures characteristic of mediaeval buildings in Lombardy; the House Salimbini in V Via Torino there with a three story and interesting columnar court, and also finally the court of H. Taverna, beautifully painted by Luini, of which a colored drawing is reproduced in the work mentioned below. [164]

Note 164. Gruner, B. Specimens of Ornamental Art. London. 1850.

260. Simple Houses for Renting.

But also the simplest houses in blocks, as they stand closely adjoining each other in Tuscan cities, there is given in Fig. 408 an elevation after a drawing in the Uffizi. A closed ground story with a great doorway and mezzanine windows, simple window sill belts, on which stand the round-arched windows, subdivide the height of the facade; projecting rafter cornices terminate the building at top. On one of these houses the owner has made himself known by his family arms. A uniform construction of the street facades has been avoided,
480 as in all times of great prosperity. Men would enjoin no ru-
481 les on the different ones, or apply force architecturally. For the combination of dwellings into a deceptive and united

whole, as attempted in the last half of the last century, and also somewhat earlier everywhere in Europe (Messina, Turin), was not a happy inspiration. In Figs 409 and 410 are given two street views after a painting of Mantegna in the Eremitani at Padua and a fresco of Ambrogio Lorenzetti in Siena; now many others appeared is shown by the pictures of theatre cities in Serlio for the comic and tragic scenes. (See sheets 49 and 50 of edition of 1584).

261. Filarete's House of Virtue and Vice, and House of Onitoan Noliaver.

Finally should be given also a word on Filarete's "House of Virtue and of Vice" and the House of the architect Onitoan N Noliaver.[165]

Note 165. By transposition of the letters in the name of Antonio Averlino. See Book XVIII of the Traktate.

When Filarete commences the description of his houses thus:-- "The House should properly have the complete form of a hill; but since it must be habitable, it is built in stories," this may suffice, and when he provides in the House of Vice besides brothels, drinking saloons, cook-shops, gambling hells and women's rooms, also for police soldiers, with the reason that vice requires a curb, and that too great scandal must be atoned for by prison and other punishments, then is this a good measure, and when over the House of Virtue rises a dome supported by the nine muses, and crowning the whole is the figure of Virtue, -- a form in armor with a countenance like the sun, standing on the apex of a diamond, with a laurel tree and a date palm in the hands, a fountain of honey at its feet, from which bees sip, as difficult of access as Parnassus, and furnished with a gushing fountain like Helicon -- this leaves scarcely anything to be desired in the grandeur of the idea(!?).

But in the precinct of the "Houses of Virtue and of Vice" the peculiar and wonderfully ornamented "House" of the builder of all great works of the city" has also found its place. In regard to the magnitude of his artist's home was he modest, since he built on only one-third of the area, leaving the remainder as a garden. Before the house he placed a portico w with four arches; on the right and left of a middle passage was a room; the passage itself led into a columnar court with porticos, at the back of which was a building with two stories

with an attic. The lower story contained two rooms, separated from the garden by a passage; in the upper story were fou-
482 nd a hall and a chamber. In the front building were two upper chambers, above these being a great hall, that occupied t the entire interior. The garden contained a fish pond and was surrounded by offices and stables.

A slight peculiarity should be mentioned; ""Over the doorway and in the court Onitoan had been permitted to add his portrait with an inscription in his honor; also the allegory of virtue and vice devised by him, imagination,and reason, fame, rememorance and intellectual endowment."

In antiquity, in gratitude for the success of his statues of the deities, Phidias was accused of theft of gold; an imperial amateur had the head of Apollodorus struck off; in the middle ages the devil took charge of the artist, who had completed a great work; in the Renaissance Sansovino was imprisoned, punished by a fine and deprived of his honorary office, because a portion of his wall fell; Peruzzi died in poverty; Borromini took his own life; in spite of his numerous buildiigs, Palladio never prospered; Titian became a rich man by h his traffic in wood, but not by his art -- and Filarete deluded himself in the thought of higher honors, than were ever paid to any artist, for what he had done wrong in spirit!

Raphael, Bramante and Giulio Romano had their own houses in Rome and Mantua; a modest house was erected for himself in Vicenza by Palladio (if this be true); Salvator Rosa occupied a charming little house in Rome (Fig. 411), and that occupied by Michelangelo at the foot of the Capitol (Fig. 412) was not large, according to the plan, and Ariosto inscribed on his house:--

"Small, but fit for me and obnoxious to none, yet not
Mean, my portion, but not a home in the air."

None have been too comfortable.

262. Location of the Living Room.

Leon Battista Alberti in his fifth Book [166] also speaks of
483 the location of the living room in the house, wherein he is so reasonable, that he does not establish any generally applicable rule for this arrangement according to a definite point of the compass, but rather makes this dependent on the nature of the site and the ventilation of it.

Note 166. Chap. 17. p. 124. (See text).

After a lengthy treatment of the chimney flues, he requires the kitchens to be placed so as not to offend the guests directly; but they should be so located, that in carrying the f food, this should not come to the table when too cold or too hot, and also so that the use of roasting pans and basins by the kitchen maids cannot be heard during meals. The room of the mistress should be so arranged in the plan, that what every person is doing in the house may be overseen from thence. Man and wife should each have a separate room, so as in the case of sickness and the like to not annoy each other. Each of these rooms should have a separate entrance and also a door connecting both, so that the mistress may privately visit the master. Beside the room of the mistress is required a r room for clothing, and a similar one for books near that of the master. If an aged father of the family be in the house, then must be provided for him a warm room with a stove (caminetto), and beside this a room for articles of value. In the latter might also be placed the sons and daughters in the room for clothing, beside this being a bedroom for the children's maid or nurse. Rooms for strangers are to be arranged in the vicinity of the corridor, and in their vicinity a room for r resting and for receiving articles of value. Their location near the entrance makes it possible for the guests to receive visits without causing disturbances in the house. Opposite
484 the strangers' rooms are to be placed the rooms for youths of 16 or 17 years of age, or at least not far from them, so that they may cultivate friendships and stay with the strangers. Beside the room of the young master is to be provided one for weapons. The rooms for the maids and servants must not lie too far from those of their masters, so that they may always be at hand for service, horse-boys on the contrary, should s sleep in the stables.

These views are also still valid on this side and beyond t the Alps.

In conclusion may be mentioned further a kind of houses, t that neither represent palaces of the nobility nor business houses, but are rather intended to receive men of different callings and accordingly exhibit a particular stamp on their street fronts. In the lower story of these and in a mezzanine

above it are arranged shops and workshops, in the upper stories being the dwellings of the so-called masters, and which is in general skilfully expressed architecturally. The lower story remains simple and plain, the upper stories are splendidly or gracefully subdivided and with greater heights of stories, as suitable for a promenent man. There the parts may be so distributed, that the business man or the nobleman may be the owner, when one rents to the other.

This compromise architecture of that time had one merit, in that then these palaces for renting were not scandalized by
485 the signs of firm in great colored letters, that covered all free wall surface from the sidewalk to the roof. What will architecture do under such circumstances? Is it still worth the trouble to strive architecturally on account of such wretched work? Certainly not. Here the modern time works without a model -- thank God -- otherwise one might give up the s study of old architectural styles. The simple dwellings of the Renaissance in Italy are mostly stucco or brick structures, rarely constructed in moulded cut stone, simple, yet not wretched. Stucco and painting must frequently assist the flat architecture and often its members. But in respect to form it corresponds to the style changes just as well as the m monumental buildings, but in a somewhat less striking manner, as shown by the comparative collection from the different periods and various places; for example, according to Fig. 76 on a Milanese house of the Sforza period, where granite columns, painted stucco and plain brick surfaces alternate with each other, and where the termination at top is effected by a rafter cornice. We see the same on a brick house from Bologna (Fig. 75) and on two Roman houses from the time of Bramante and Vignola (Figs. 413, 414).

Fig 415 gives the frequently described palace-like House w with three windows of Baccio d'Agnolo in Florence (1520), half dwelling and half palace, later arranged as an inn (Locanda del Nord), now somewhat improved, but still such an interesting example of how high the idea of the facade of a house might and should be carried. Quiet and rich but without overloading, it was completed four years after the death of Bramante. The rectangular windows with severe pediment caps animate the surfaces, and instead of vertical subdivisions occur

flat recesses and semicircular niches. The pediment caps mentioned stand directly on the cornices with free ornaments, a and to which reference has already been made. On account of the early occurrence of this kind in the Renaissance, there may still be mentioned an example little considered elsewhere,
486 that indeed never has stood before us as an architectural structure, but has been preserved to us as a sculpture (Fig. 4 416). On the altar of Petrus Marcellinus in Cremona, chiseled from marble by B.Briosco, we find the representation in relief of a two story palace facade, recalling the manner of Alberti, that shows how far certain motives of the Lombard a architect Amadeo coincide with those of a Laurana, since Briosco was employed from 1481 onw.rd as assistant to Amadeo, w who himself worked again in 1466 on the Certosa near Pavia, while Laurana was first called to Urbino only in 1468.(Also see Collezione di Monographie Illustrate; Painters - Sculptors - Architects. C. A. Amadeo, sculptor and architect, by Malaguzzi-Valeri. Bergamo. 1904).

Before entering on the consideration of the different structural parts and of the internal treatment, I may yet recall a classification of the great architectural epochs of the Renaissance by Letarouilly, that has much in itself, even if it was also particularly established for the buildings in Rome. Generalized, it can be used for the possibility of a rapid d determination. (Text, p. 131).

List of principal buildings of modern Rome according to Letarouilly.

a. Renaissance. First epoch. Foundation of S. Maria dell' Anima. 1400.

b. Second epoch. Foundation of Basilica of S. Peter. 1506. (Bramante). Until Palace Conservators on the Capitol. 1542. Michelangelo.

c. Epoch of transition to the decadence of 1561 until;

d. Decadence of 1602.

e. Epoch of imitation and of indecisive theories from 1700 until 1831.

Banks and warehouses in the great style are brought down to us in the Bank of the Medici in Milan and in the Fondaco de' Tedeschi in Venice, the Warehouse of the German Merchants. These were structures like palaces with rich painted and scul-

sculptured ornamentation, built architecturally symmetrical, and indeed no bazaars for everybody, with the goose-pen motives of our modern warehouses (department stores).

SECTION XVI. DETAILS AND INTERNAL FINISHING.

Plinths, Belts, Main Cornices of Wood and Stone; Corbelling of Stones; Windows, Entrance Gateways, Niches, Balconies, Bay Windows, Loggias, Balustrades and Attics; Pediments and Belvederes; Chimneys; Dormers and Roof Coverings; Heraldic Ornaments and Metal Decorations.

Even if certain details of palace, villa and house architecture were necessarily touched on with the different kinds of buildings, and this must be so, yet a systematic comparison of these cannot be entirely omitted, particularly since for the manner of their artistic treatment in many cases, the material employed is determinative; for example, whether natural stone, bricks, terra cotta, wood, plaster or stucco was u used in construction, which can only be described here in de-
487 tached cases. Also the derivation of certain parts from the works of past times can be more closely examined here.

263. Plinths.

A separate base in a more or less developed form, height a and projection, belonged to any artistic building in all times, whether it was a fully developed stepped structure, as on Grecian temples, or a triply divided substructure, as shown by Roman temples (Maison Carree in Nimes), or by the slight projection of a course of high slabs set on edge, as for all walls of Doric temples, without any further addition of mouldings.

This last form was preferably followed by the Renaissance, where narrow streets forbade a bold development of the plinth, or where the nature of the material close to the pavement appeared to make it unsuitable. Thus the brick buildings of B Bologna frequently lacked a plinth of any artistic form; the brick walls rise vertically to the first window sill belt (Palace Carraci in Bologna), or a plain slab plinth was constructed of natural stone, thereby keeping the bricks from contact with the sidewalk.

264. Plinth in two or three Divisions.

On Palace Serristori in Florence the wall ashlars with bosses begin directly at the sidewalk; Palaces Torregiani and Q Quaratesi in Florence, Versopi in Rome and others have plain and slightly projecting plinths; Pandolfini and Pitti show a division into two parts, i.e., above the masonry rising from

the ground is a plain or moulded covering belt; palaces Strozzi, Bartolini and Guadagni in Florence and Bevilacqua in Bologna have the bench plinth already mentioned (Figs. 417, 418, 419); Rucellai in Florence and Piccolomini in Pienza also hack connected therewith, bordered by a special belt. (Palace Rucellaiin Florence, Fig. 240).

The antique Roman triple division of the plinth was first
adopted by Bramante in the most beautiful way on the structure of the cancellaria and on Palace Giraud in Rome, which ha-
488 ve remained as models for the later time. Base, dado and cap
together form the plinth of the building, first expressing at
a small scale what is expressed on a large one on the entire
building by its triple division into plinth, vertical wall a
and roof cornice (Fig. 247).

265. Belts.

Window sill belts and story belts subdivide horizontally t the vertical masonry of the structure in its height, the first of these being usually made less bold and less strongly p projecting. Florentine palaces and houses of the Early Renaissance all exhibit, as already stated, according to the mediaeval custom continuous window sill belts, moulded similarly to antique impost caps, on which are directly placed the window enclosure. They mark on the facade the height of the window parapets, which certainly do not always correspond in those common windows. Steps arranged in the recesses of the j jambs only bring the occupant high enough for him to look over the window sill belt down upon the streets (Fig. 25).

When the height of the story from floor to floor is indicated on the exterior, thus not from window sill to window sill, then appear plainer cornices at the height of the beams, frequently accompanied by frieze and astragal (for example on P Palace Farnese in Rome). But also both belts appear together on the building, if the horizontal is to be still more emphasized, when the story belt becomes a base for the window parapet, which then consists of the base, the parapet slab and the continuous window sill belt, but then returned.

But the stories were also characterized by another kind of horizontal subdivision, equally whether a vertical division by pilasters of the different orders existed or not, when the antique members -- architrave, frieze and cornice -- extend

on the facade as window parapets (Palace Rucellai and Palace Larderel in Florence). If bricks were used instead of cut s stone, then the projections were diminished in accordance with the material; the power of expression is lessened, the love of ornamentation appears in the foreground, and also the customary antique members are omitted (Palace Fava in Bologna).

266. Main Cornice.

The upper termination of every building is formed by the r roof or eave cornice, whose form, size and projection in esthetic respects indeed first depends on the entirety of the s structure, but also is chiefly determined by the material.

267. Wooden Cornice.

The oldest are constructed of wood, and are composed of the
489 uppermost ceiling beams and the rafters of the roof. They b best fulfil their purpose of affording protection and shelter to the lower parts of the building against sun and rain. The great projection, often more than 6.6 ft., beyond the plane of the wall was more rarely made possible by oblique struts under the rafters, as on mediaeval house architecture on this side of the Alps, but by variously combined wooden caps or c corbels below the rafters. Cornice supports of inclined struts are to be found on the peasants' houses of Altepiani d' Abruzzo.

268. Cornice of Cut Stone.

The projection of eave cornices is limited by the use of s sandstone or limestone. In order to not have to construct t the walls of disproportionate thickness, the Renaissance frequently adopted the expedients, frequently too very artificial, in order to arrange the greatest possible projection. (See cornices of Palace Strozzi in Florence and Palace Piccolomini in Siena). In regard to form, they generally adhered to the antique console cornice, thus bearing in mind the ancient ratio of 1 to 1 of height to projection, employing consoles sometimes in simple form in the frieze, sometimes in richer form beneath the coffered cornice slab. The cornice was then accompanied by frieze and astragal beneath, or by frieze with architrave, according to the subdivision of the facade surface.

269. Brick Cornice.

If bricks were adopted for construction, then what has been

said for eave cornices remains true for belt cornices of brick. The projections are reduced; the ornamentation by relief and colored ornaments must offer a substitute for the lack of energy.

270. Cavetto Cornice.

The Egyptian style is almost recalled by the great cavetto cornice, which is constructed of wood, reeds and mortar, and whose monumental model must indeed be sought on the facades of the Early Christian basilicas of Rome. In connection with lunettes and colored ornamentation, they produce a charming decorative crowning of the building, as may be seen on many Lombard structures, with the most beautiful on the bridge-house of the Certosa near Pavia and on Bolognese palaces. (Figs. 118, 119, 120).

490 271. Corbelled Stories.

The mediaeval corbelled story, where no words were lost on the construction, does not absolutely assume half timber construction, to which was indeed devoted no consideration in t the cities of Italy. Already in the middle ages [167] men employed monumental structural materials, in order to still secure a relatively wide street for traffic without loss of area for the dwelling, the compelling reason, that in cities with increasing population and closely drawn walls forced the building of crowded and lofty structures in stories.

Note 167. See Pisa, Florence, Siena, etc.

There the corbelled facade walls rested on stone corbels, which were connected by arches, where was received the aid of bricks or of cut stones, according to whether the locality c concerned preferably offered either material. Thus for example at Bologna, on its Palace dei Carraci by the use of ordinary bricks and without the use of any art form were built p projecting corbels, capped by stone imposts and connected by small semicircular tunnel vaults, which are richly moulded on the front ends and have ornamented archivolts; above these t then commencesthe plain coursed brick masonry (Fig. 80).

At the same place in the court of Palace Fava, the tunnel
491 vaults are set on massive richly decorated consoles, that support a continuous gallery (balcony), but which (according to Filarete) was not intended for drying linen.

In Florence, men adhered to the mediaeval mode, only for

tunnel vaults replacing the pointed by the round arch, or built with ashlar consoles. Very beautifully executed with solid consoles of artistic treatment (volute corbelling and flat ornaments in the spandrels; Fig. 420 D) is the corbelling on the facade of the Inn "Ginevra e Porta Rossa" in Via Porta R Rossa in Florence. On a house in Via dei Michelozzi near S. Spirito the consoles for the upper story project 4.9 ft. from the face of the ground story, they are composed of 4 courses of ashlars, set 5.9 ft. on centres, and are vaulted by round arched tunnel vaults (Fig. 420 A). For greater projections, where the consoles are constructed of relatively smaller stones, the ashlars are frequently displaced; such consoles were later connected with the strong masonry of the lower story by visible iron bands. On some simple houses of the early period in Via del Mercantino, we also find the consoles connected by segmental or pointed arches.

A wooden construction entirely translated into stone, in w which the horizontal corbelled beams are formed like architraves and are supported by stone struts 6.6 ft. long, resting on corbels, where the supports lie 7.2 ft. apart and only support tied tunnel vaults at the ends, are shown by a house in Via Toscanella (Fig. 420, B). I mention only these few characteristic examples, although many similar ones may still be found in the city.

The old painted House on Place S. Croce (Palace Antella), whose original plan is found among the drawings in the Uffizi as a permanent exhibit, shows a stone beam construction without arches, i.e., one with horizontal lower beams, where the corbels are 8.6 ft. on centres and stone struts over 6.6 ft. long with a section 1.18 × 0.85 ft. are employed.[168] (Fig. 420, C). Thus perhaps Filarete conceived the corbelling of his artisan's house to be constructed.

Note 168. Similar constructions with straight stone beams and struts are on the projecting structures of Ponte Vecchio in Florence and elsewhere.

Another mode of supporting corbelled stories, that produces an effective architectural motive, is found on a row of houses on Place delle Erbe in Verona (Figs. 420 E and F, examples from Bergamo), where instead of the struts are arranged vertical free supports in the form of columns.

272. Windows.

What antique art and indeed also the middle ages created in forms of windows, we find again in the Renaissance under certain modifications. The new was adopted, but as translated into the form expression of the Renaissance. The basal form is often still Romanesque and Gothic, but the details are like the antique. The horizontal lintel, the semicircular as also the pointed or segmental head were retained; a new form was scarcely added to these; trefoil, foiled, ogee, curtain or dropped arches as the internal form of the window remained mostly foreign to the style, but are not excluded. (See buildings in Padua, House Olzignani). A kind of curtain arch is found on Palace Montanari in Vicenza, others on the portals of S. Agostino in Montepulciano, on the Confraternita in Arezzo, on the facade of the Palace in Urbino, etc.

The coupling of single windows, their enclosure by a great arch and their combination into a whole were doubtless taken from the preceding art period, as well as the horizontal span-
492 ning of the stone cross window within the enclosure (Rome and
493 Florence; Palace Venezia and Palace Gondi). The window enclosures generally have the form of an upright rectangle, from which however variations are not excluded. The ratio of width to height in the clear varies between the limits of 0.5 to 1, 1 to 1, 1 to 1 1/2, up to 1 to 2 and beyond (Figs. 421 to 425).

273. Enclosures.

The enclosures of the window openings occur in the simplest manner by a uniformly moulded band extending around it, membered like the mode of the antique architrave (ground story windows of the Florentine palaces of the Early Renaissance), or the lower part of the enclosure is cut off and replaced by a separate window sill belt, where the moulding reappears. Likewise the enclosure with the so-called ears on the lintel with jambs either slightly inclined or accurately vertical a after the antique model still remains in use. Repeating the ears at the bottoms of the jambs is likewise not excluded.

274. Ornamentation.

The enclosure is enriched by a frieze and horizontal cap above the lintel, where also ornamental decorations might appear over the latter (Figs. 4261,24 a, b) in triangular or seg-

segmental pediment forms. More expression is secured by this addition with the arrangement of consoles at the right and l left of the lintel, that support the cap and which frequently are continued as bands along the jambs. The enclosures are richer, if to the jambs and lintel are also added pilasters, half or three-quarter columns or even full columns, which then bear a complete antique entablature with or without pediment (Figs. 427, 428).

Broken or divided pediments belong to the Late Renaissance and the Barocco style, ogee ones to the time of Bernini and
494 Borromini. Returns restricted to the entablature and leaving the pediment unbroken are likewise a form of the late time, but are ornamentel by shells or cartouches with good effect. (See the windows of Palace Conservators in Rome). Instead of pilasters also occur hermes piers and lions' heads diminished downwards, as on the windows of Palace Cucoli, Via de' Servi in Florence, above being broken cornices or female heads with busts, as shown in a charming manner by a window in Via Ginori in Florence.

495 275. Windows with semicircular Heads and coupled Windows.

The semicircular headed windows of the early time departed from the antique in the form of their enclusures, they either exhibit the wide ashlar enclosure with outer raised (excentric) round form or the pointed form with the peak at the crown, and also plain, moulded and decorated bands form the enclosure (Figs. 422, 429). The coupled windows of this kind have either the same bold ashlar enclosure, which is fitted with small piers and architraves, above which then rises the small round arches with a perforated tympanum slab, or instead of the dividing pier appear slender little columns and narrower pilasters at the jambs, that receive the architrave and arch, where the enclosure is arranged in the ashlar work. A beautiful and rich form is shown by a double window recess in the court of S. Pietro in Perugia (Fig. 425), where the finest antique details attain to their full rights. The archivolt membering of the double window and of the enclosing arch are entirely carried down to the window sill as the enclosure.

The arrangement of the great arched windows on Florentine palaces (Strozzi, Riccardi, Rucellai) has already been illustrated and described in the text, so that only a reference to

the details alone remains, which is shown at larger scale in Figs. 240, 241, etc., in what manner the arch members intersect, and how the arch spandrels are filled, where they are n not perforated.

276. Construction of the Windows in Brickwork.

Beautifully treated are these window motives on the brick buildings of the Early Renaissance in Lombardy and farther south to Bologna. Not easily are found elsewhere more charming and luxuriant details than here, where also the treatment of the ground form of the window experiences a change, so that the middle support often gives place to a free ending in form of a console. A characteristic peculiarity remains there in the impost and apex acroterias, frequently at large scale, but always finely detailed. The Houses Vecchetti and C Carraci, Palaces Pallavicini (now Felicini) , Fava and Bevilacqua in Bologna present charming examples of this playfully decorated brick architecture. But still more richly, Filare-
496 te and his colleagues or followers on the Hospital Maggiore in Milan have shaped its pointed double windows, with the use of marble and of terra cotta. Here the brick arches of upper Italy besides the Bolognese celebrates real triumphs, which relate to composition, forms of details and technics. The m magnificent wide enclosures with the cupids climbing vines, the fine accompanying bead and egg mouldings, together with the monumental filling of the arch spandrels with vividly modeled busts, the moderately slender marble shafts of columns supporting the double arches, produce a precious architectural representation in enclosures by colonnades and blind arcades of the facades.

277. Enclosures of Double Windows by Pilasters and Entablatures.

But a still more magnificent effect was produced, when these coupled round-headed windows were enclosed within a rectangle formed by an entablature supported by pilasters or columns, to which could be added pediment caps. (See School S. Rocca in Venice, Fig. 430).

278. Window of Sansovino.

Decidedly more charmingly are developed the forms of windows, when the masters returned to late Roman models, and transformed these into splendid works of the highest rank by their

refined taste, when they preferred triple windows, whose middle part was round-arched and the side parts were spanned by horizontal architraves (Fig. 269), a motive that may still be found on the Palace of the Emperor in Spalato, and which Sansovino in his Library in Venice indeed clothed with the most refined details, when he supplied a keystone to the arch, and filled the adjacent spandrels with figures after the precedent of the Roman triumphal arches.

279. Window of Palladio.

Simpler and at the same time more effectively has Palladio employed the motive, certainly not on palace or house windows, but on his Basilica at Vicenza, which there in respect to grandeur far surpasses the style of Sansovino.

Palladio has further transformed this motive in a singular way on Villa Pojano, where a missive ashlar arch is made concentric with the inner and smaller one, and the slabs filling the space between the two arches are again perforated by plain openings.

280. Window of Baccio d'Agnolo.

The same idea, but transferred to richer forms, we find employed in the windows of the hall in the upper story of Pala-
497 ce Vecchio in Florence (Fig. 423), except that there instead of the perforated filling slabs, consoles are set like spokes, and further the entire arrangement is enclosed by Composite pilasters with the accompanying entablature, by which an ornamental form is produced, such as is not easily found again in a similar way, and particularly at this large scale.

More modestly is the idea expressed on a window of Palace Pucci in Florence with a beautiful development of the details, having a keystone with arms and a cardinal's hat, crozier and mottos in the arch spandrels. (Fig. 427).

498 281. Other Windows.

A freer treatment occurs on the round-arched window with v vertical and horizontal enclosure on Palace Puoti in Verona, late indeed, but not in an unskilful manner. below the imposts at each side are arranged hermes supports standing on consoles and pedestals, from which rise the figures, nude from the waist upwards, and that indeed have a returned band above their heads, yet they do not occupy themselves on supporting this, but rather play unseemly tricks (Fig. 431), while the

male figure looks through his spread fingers toward the enticing female,figure. On another window, disdainful male figures stand opposite each other, one of which turns his back to the observer. Less skilful are the keystones, formed as colossal heads projecting without any architectural transition, as on the Etruscan Gate at Volterra.

As an interesting peculiarity areyet to be characterized t the window in Via Sacra in Florence and that inserted in the formerly open gateway arch of Palace Pitti (Fig. 429).

282. Window of Bramante.

The great Bramante employed the round-arched window in a s special manner by placing it within a rectangular enclosure, either in entirely simple form or one most richly treated. The Gothic already sought similar forms in Lombard buildings, and Romanesque art before it; likewise the Early Renaissance had the need for arranging an external enclosure for round-arched windows. (Castle in Ferrara and Hospital Maggiore in Milan). But in the present case we must go farther back. There may have been structural reasons sometimes, which led the masters to seek a form, that afforded a better bonding between the vouissoirs and the coursed ashlars, that that by the direct abutting of the horizontal stones on the voussoirs of round, pointed or segmental arches. Such stonecutting is and remains bad, dangerous at all times when employed. It is obviated by the well known ancient Roman jointing of the voussoirs, or even more simply if the adjacent stones between the voussoirs and the coursed ashlars are cut in the same blocks with the former, as Bramante did, and as the Greeks and Romans did before him. We find in Athens the bonded arch in the vicinity of the well known Tower of Winds, a work of the 1 st century of the Christian period, where the triangular spandrels already bear complete rosettes, and a further example on Gate de'Borsari in Verona, where the perfected "Bramante window" of the Cancellaria in Rome is entirely prefigured, yet with the difference, that in Verona the detail is coarsely e executed. Whether in Bramante's time, allied forms in more beautiful style were preserved from a better epoch of antique art, is hard to state, but is more than probable. (Fig. 433; Gate de'Borsari; Fig. 432; window of the Cancellaria). (Also see further the combination of the window with pilasters

499

and horizontal lintel in Pesaro, Urbino, Rusciano, etc., in Fig. 24 a).

The introduction of the extravagant window forms of the Barocco style, that take a hundred different shapes, and still are only more or less capricious or dull imitations of the o old basal forms, must be omitted here. They would fill volumes without presenting anything new or important. (See Guarini and his followers, among whom he is still most convincing).

283. Window Closures.

That Roman antiquity was not satisfied by closing windows and doorways by fabrics, lattices of wood or metal, wooden s shutters and the like; it is well known that wooden frames s shutting into wooden window frames, and that not very small glass disks were common in the imperial period, also that then
500 en metal fixtures for opening and closing window, door and s shop shutters, such as hinge straps, locks with spring bolts, and that further the wrought joiners' work, mortises and tenons at the joints of wooden parts, grooves, inserted stops ((technical methods already employed by the Egyptians), were executed, may be assumed likewise as well known. [169]

Note 169. Further see Durm, J., Baukunst der Etrusker und Römer. Part. II. Vol. 2. 2 nd Edition. In this Handbuch).

The storms of the migrations of the nations also dispersed these acquisitions of the ancient world, and a later period of rest and quiet development could again "rediscover" what the ancients had previously done, and the beginnings were again as rude and the same as in long past ages. First external and then internal shutters, that swung with hinge straps on pins, or on pivots and rings (sockets), like the ancient Etruscan tombs, fastened by an inside wooden bar, by hooks a and rings, or sliding bars and holes, shutters in two folds, held together by hinge-straps or by separate bands and links -- these were practically the means by which men protected t themselves from heat and cold, rain and sunshine, for more t than five centuries; but for round-headed windows, the outside shutters generally extended only to the imposts; the upper portion between the arch spandrels remaining open.

With this primitive and mediaeval closing of windows, which always appear as solid wooden shutters with or without small
501 openings for light, and that left the room dark, if men desired

to protect themselves from rain and cold, the early time of the Renaissance in Italy was contented. (Fig. 435).

In adjacent France, accounts for windows in the Castle at Caen (1338), in the Hospital Hotel Dieu in Paris (1376), and in the Palace of Charles VI (1380) make it certain, that also there no other means for closing were in use, and even at the siege of Troyes (1429) such were still mentioned.

Window openings, by which men might admit light and still be protected from wind and weather were hung with oiled linen cloth, or the linen was fixed in the wooden frames or in the openings. Thus in the year 1390 the Carthusians in Dijon closed their chapel windows with oiled linen cloth, and in the "account of the expenses of king John in England" (1359-1360) are mentioned for the windows in the apartment of the king, wood for windows, nails, and oil of turpentine for making the linen cloth transparent. In 1380 Charles VI had money disbursed for waxed linen cloth (toile ciree) and nails for windows in the room of Monseigneur d'Anjou. Likewise thin leather (peau de cuir) is also charged, made transparent by fat.

In the 14 th century the citizens of Paris were acquainted with no means of closing windows other than with oiled linen cloth. According to the accounts of King Rene the same conditions, i.e., the closing of windows by means of oiled linen existed in the Palace at Tarascon (1447), the Palace of Aix (1448), in the House of Pertius (1450), and in the Palace at Reculie (1471). For the apartment of Louis XI (1478-1481) t the accounts of King Renee exhibit payments for oiled paper for closing the windows. This was an improvement in the admission of light; it was less durable, but more transparent. To protect paper and linen against the wind, harp strings and bow strings were drawn through it. This practice still continued in the 16 th, 17 th and 18 th centuries. In the Palace at Fontainebleau even in 1639-1642, paper and glass windows
502 still alternated. The princess de Montpensier stated even in 1649, that she had in the Palace of S. Germain a grand, gilded and painted apartment, but without any glass in the windows! In Bordeaux waxed linen was mentioned even in 1735, and in 1740 oiled paper in the Hospital at Lyons.

234. Glazing of Windows.

Instead of oiled paper, oiled linen cloth and of thinly sha-

shaved skins saturated with fat, glass also occurred for palaces and houses. While still in the entire 15 th century and for 50 years later, glazing was but rarely found, it became tolerably common in the 16 th century (1550), but where it m must not be forgotten, that ancient methods still remained in use. Then glass was still quite costly. The requirement for pure and bright daylight in the rooms also caused the omission of stone crosses from the windows, in order to afford freer admission to the light, wherewith the colored glass likewise disappeared, and at the end of the year 1650 the use of only white glass in living rooms was established. Complete glazing was preceded by partial glazing; the small disks (ro-
503 undels) were in time succeeded by large ones, i.e., the earlier roundels and quarries were supplanted by rectangular panes set in lead, with and without facets (Fig. 434).

In the work mentioned below, [170] is published a colored representation of a sleeping chamber from the 15 th century, whose original is found in Museum Louvre in Paris under the title of "L'Annunciation." It shows a rectangular window without a stone cross, where about 4/5 of the opening of the window is closed by a twofold solid and nailed wooden shutter; o one of these is also subdivided in height, while the upper f fifth of the window is glazed with lozenge quarries set in l lead. (Fig. 435 d). It gives a faithful and indisputable view of a window closure from the time, when entire glazing was n not yet introduced. This condition must then be transferred to the arched window, of which we have stated, that the shutters only extended to the imposts, and that the upper part r remained open, to later receive glazing.

Note 170. Havard, J. Dictionnaire de l'Ameublement et de la Decoration, from the 13 th century to our days. Work crowned by the Academie des Beaux Arts. Paris. °. D. Vol. 1, Pl. 41.

In the Cathedral at Rheims is to be found a tapestry from the 15 th century, representing the birth of Christ, on which is drawn a glazing with lozenge quarries. From the same time dates in the Library at Siena a picture by Pinturicchio (1454-1513), on which are painted roundels, and in the picture, "A Lesson in Anatomy," after the medical pamphlets of Jean Ketham (Venice, 1493), are roundels again, and also such are likewise given in the painting by Ambrogio Borgogne (died 1524)

in tne Certosa near Pavia. Botn kinds must tnerefore have b been employed at the same time, wnen men disused linen, paper and leatner. But tnere must not be confused tne small flat pieces of glass cut round and set in lead witn tne cast roundels witn a knob at tne centre. (See tne glazing witn roundels and rectangular glass in tne windows of Palace Doge at Venice, on buildings in Vicenza and Florence in Fig. 435).

But tne mediaeval nailed shutters for closing windows in g general are also found in tne Early Renaissance, for wnicn n we nave tangible evidence, and indeed on one of tne most important monuments, Palace Strozzi in Florence. Tnere in tne upper story are still preserved two of tne old shutters at t tne rear of tne palace next tne small Place. But tney are n not constructed in tne rudely grooved way or cut from a piece of plank, but are arranged after tne antique fasnion in frames and panels, one naving five and tne otner tnree panels in neignt, tne frame being beset by tnree rows of iron nails. (Fig. 435 n). On a plate among tne publicly exnibited drawings in tne Uffizi appears tne painted representation of tne old window closures of tne still existing Palace Antella in Florence, and wnicn in part consist of ninged sasnes for opening (Figs. 435 g, i), and partly of wooden snutters, in wnicn are cut small square noles to admit daylignt to tne interior. (Fig. 435 e).

The colored and wnite glass disks set in lead were retained in tne 15 tn and 16 tn centuries, witn and witnout connection witn snutters, in tne form of roundels and lozenge quarries, as represented on innumerable miniatures and woodcuts,[171]; tney give place tnen to larger ones set in wooden sasnes, and in tne second nalf of tne 17 tn century, we enter into tne m modern epocn of tne window, wnicn in tnis time is also freed from tne stone enclosure and all superfluous woodwork, and t tne number of sasn bars is diminisned. (Figs. 434, A, B).

Note 171. For example in Locroix, P. Moeurs, Usages et Costumes au moyen Age et a l'epoque de la Renaissance. Paris. 1871. The illustrations concerned mostly date from the 15 th, but also some from the 16 th century.

504 Maria de Médici in Palace Luxemburg made tne first experiment witn cut glass set in silver bars, but on account of its great cost, tnis found no great use.[172]

Note 172. In the Palace at Mannheim, but set in wooden sashes, such were in existence a few years since, that had dimensions of 8.4 × 10.8 ins. with entirely flat bevels 0.64 in. wide. By lack of understanding, they disappeared during a r restoration. -- In the Palace at Bruchsal, the rectangular p pieces without bevels (though indeed no longer the old ones) are 9.2 × 6.7 ins., and on the main facade are set in wooden sashes, but next the great vestibule stairway are set in gilded leads.

These rectangular white panes, set in wooden or iron sashes or in leads, with varying dimensions retain supremacy until the middle of the 19 th century, where also these still larger panes with and at last without sash bars must yield place, and which in the most recent times were again exchanged for the small leaded glass of Louis XVI, after the modern second poem of roundels has died away.

Thus the old again becomes new, and to those among our architects and patrons, who participate in every change today, we wish humor and money!

The dimensions of the glass panes formerly determined their value, and the starting point for the manufacture of large panes lay in the making of mirrors. There was first the endeavor to again produce large sheets, of which Seneca tells in ancient Rome, that they reflected the human figure in its entire size. Italy had taken the lead in this; Venice had the monopoly of the manufacture of large panes of glass, and supplied the entire world with them. But what men understood t then as "great", would no longer be prized today. In the inventory of Cardinal Mazarin (1653) is mentioned a Venetian m mirror 27 × 22 ins., and one such 50 × 65 ins. was still regarded as a wonderful work in 1759. Some years later were already produced mirrors up to 78 × 47 ins., and the largest f framed mirror possessed by Louis XIV measured only 53 × 34 ins. How precious it was considered may be shown by the occurrence, that the republic of Venice believed itself to have done a g great work, when it made a gift of a mirror to Maria de Medici on the occasion of the birth of Louis XIII. What value w was placed on the manufacture is established by the invitation of workers from Murano at high wages by Henry II in the 1 16 th century.

But mirrors also played a part in the decoration of the interiors of the apartments of the great and the wealthy. Thus Catherine de Midici (1589) had a cabinet of mirrors, that contained 119 mirrors from Venice. Maria Antoinette had in the Trianon a bathroom with painted mirrors and a boudoir "entirely in glass." The Late Renaissance, Barocco and Rococo preferably made use of mirrors in decoration, frequently in a charming, original and most happy manner. On this side of the Alps should be mentioned the Favorite near Rastatt, the Palace at Würzburg, the Palace in Pommersfelde, etc.

But with the mode of glazing also changed the wooden construction of the windows and their fixtures.

The accounts of Fontainebleau (1536-1639) speak of divided leaves and distinguish between single and double leaves, (chassis a fiches and chassis brises), and from 1691-1692 also of sliding windows (chassis a coulisse, now termed a guillotine); but they also bring fixed and movable sash in contrast with each other. The sliding windows with sash bars were made of iron as well as of wood. For example, at the City Hall in Rouen, the glass was set in iron sashes. To the sliding windows and the window leaves swing or hinge straps were also added in Italy and removable leaves, like those shown on Pal-
575 ace Antella at Florence. But the movable leaves presuppose window frames, which further were already employed with shutters having a glazed and fixed transom.

With the larger quarry panes then are combined as a closure for necessity internal shutters, that for external walls of ordinary thickness were easily added in the jambs, and received an artistic treatment (Fig. 436),[173] like the other wooden articles of furniture and construction of an interior, (doors, wainscot and paneling).

Note 173. Blondel, J. F.. Cours d'Architecture, or Treatise on decoration, distribution and construction of buildings. 9 volumes, published by Desaint. Paris. 1771-1777.

A technical and perfected execution was received by windows, window shutters and their fixtures only in the late time of the Renaissance, in the times of the Barocco and Rococo, and continuing to our days. Carefully designed in even the smallest parts, taking into account all peculiarities of the material concerned, regarding all possibilities, these innovatio-

innovations in the internal architecture rise to truly model works, and they dominate the internal architecture since more than two and a half centuries. No modern dwelling may dispense with them, they may be in any preferred style; for no intelligent man, for a conventional caprice, would return to the window closures of the mediaeval houses, unless he is willing to say to his friends, as Madame de Maintenon said to Duke de Noailles (1705); "If I longer occupy the chamber of the king, I shall become a paralytic; neither a door nor a window closes. One is so buffeted by the wind, that it reminds me of n hurricanes in America." It exhibits a shocking ignorance of the development of affairs, a blindness and a hateful ingratitude to the antique and the Renaissance, when any one prints today:-- "In the arts and in handiwork, almost all problems were solved in the middle ages, and all types were created."

285. Fixtures.

Sashes and sash bars (where the latter were not made of metal) were made entirely of hard wood (larch or oak), the shutters in panel-work after the antique style, the fastenings of windows and shutters were of iron or bronze (brass).

506 The movable leaves in ordinary buildings frequently show f fixtures with angle bands (bent bands) and hinge pins (Fig. 437), but in the better buildings are always bands or the an-
507 tique strap hinges with the use of iron or brass, where only the knuckles are visible, the straps being let into the wood and fastened by pins, whose plain heads often project, sometimes even being gilded. For thin wood, we also see woodscrews used (since 1650) for fastening certain parts of the fixtures. If the leaves are large, then with the bands also occur the inserted corners (the so-called sham-hooks) at the angle connections of the frame. [174]

Note 174. Well preserved fixtures of this kind are yet in the Palace at Bruchsal, where all parts are made of plain brass, while the woodwork is painted in oil colors.

The fastening of windows in leaves and their closure was effected for small and simple structures by bars (handle and l-lever) or by sliding bars of the most varied kinds (Espagnolette and latch bolts). Handles and knobs frequently received very rich ornamental treatment with the addition of gilding, and also the knuckles of hinge-straps. The fastening of the

shutters were mostly by strap hinges and latch bolts, whose handles on the inner side are mostly treated as hanging movable rings, to afford the greatest possible free space between the jamb and the shutter. These inner shutters were included in the general decoration of the interior, and were accordingly painted, gilded and covered by ornaments.

236. External Windows and Protection of Windows.

To afford greater security against drafts of air and the c cooling of the glass surfaces during the cold season of the year, men already in the 18 th century [173] had recourse to m movable external windows, closing inward (winter or double w windows), when the permanent windows were made with a rebated ogee joint, the outer ones having a simple ogee joint. (Fig. 436). [173]

We see on the old palaces of the Gothic and of the Early R Renaissance periods wrought iron arrangements placed in the window openings, which are not understood without further explanation, but for which information is given by the very precisely drawn and painted pictures of Fierenzo di Lorenzo in the Gallery at Perugia. They were intended to receive round wooden bars lengthwise, on which protecting curtains could be fastened to protect against the sun and prevent seeing into the interior in case of need. (Fig. 438). Likewise leaves covered with cloth, as on Palace Antella in Florence (Figs. 435 g, i) are to be seen on the paintings in Perugia. In cities in Piedmont, as for example in Borgofranco, Aloa and others, we find everywhere the same arrangements from the late mediaeval times (Fig. 438).

237. Arrangements for Security.

Arrangements to prevent burglary are chiefly employed only on the windows of the ground story, and are constructed of i iron bars crossing at right or oblique angles, forming squares, rectangles or lozenges, and filling the entire clear opening of the window. These simplest forms are succeeded by richer, when some of the spaces between the bars are filled by scrolls. (Fig. 439, from a window in Vicenza). In others s straight bars are entirely avoided, scrollwork entirely filling the window frame (Fig. 440;.from window of a chapel from Pallenza). Swelled grilles, as characteristic for the German Barocco, are found in Verona on houses in Via S. Alesso. (See

Italia Artistica. Verona. p. 154). For round-arched gateways, the opening from imposts to crown is generally filled by wrought iron scrollwork, as shown by Fig. 441 from an arched gateway of Palace Tommasino in Cortona.

238. Main Entrance Gateway.

Entrance gateways. The principal entrance gateways are subject to the same changes from the simplest to the richest, as the windows. The Florentine palaces of the Early Renaissance (Strozzi, Riccardi, Pitti, Gondi) as a rule exhibit as the e enclosure of the doorway opening a simply moulded but broad enclosure, that is semicircular at top, with a proportion of the clear opening from 1 to 2 to 1 to 2 1/2, and where all o other ornamentation is omitted. On Palace Rucellai the gateways are rectangular at top; on Palace Vitelleschi in Corneto (transition style) the entrance gateway is likewise rectangular, and is crowned by a pediment resting on consoles, whose treatment is given on account of its complex and chaste details (Fig. 14). Then follow the richer portals of the Lombard Early Renaissance, enclosed by pilasters and antique entablatures, of which a splendid example is given by the portal of the old Palace Medici, now to be found in Castle Vecchio at Milan (Fig. 10).

Likewise the abundance of small house portals in Genoa is not to be forgotten, which are sometimes enclosed like the B Bramante window, delicately and finely ornamented in details, with figures, sometimes by pilasters or free supports like candelabras and the completing entablatures. In Lucca is to be mentioned the beautiful entrance doorway on Palace Archbishop (Fig. 442) as a charming work of the Early Renaissance.

The most perfect are indeed the splendidly ornamented portals and the entrance doorway to the halls in the Palace at U Urbino. Others are found in Cremona, Lodi, Parma, etc. (Fig. 443).

The pilasters again yield place to the half, three-quarter and full columns (Doria-Tursi, Durazzo in Genoa, Sciarra in Rome, etc.), the single columns to double ones with the addition of figures (Palace Spinola in Genoa); angular and segmental pediments with reclining figures (Palace Gambaro in Genoa) rise above the horizontal entablatures, and finally the portal columns are merely supports for the balcony added above the

doorway. (Palace Franzoni in Aloano).

But instead of columns there also first occur hermes-caryatids, either in attached form at Palace Cippola in Brescia, or in a freer and more animated manner as on Palace Durazzo-Brignole (Via Nuovissima) in Genoa, with half figures growing out of consoles, with raised arms in bent pose supporting entablature blocks, on which rest the higher balcony.

Unfortunately female hermes-caryatids are emphasized on the Archbishop's Seminary in Milan more as freely projecting pieces of ornamentation, recalling antique models, in idea like the figures of the Incantada at Salonica (Fig. 445) [175]. Instead of the hermes also appear stocky and muscular entire figures supporting balconies, as they stand on high pedestals at right and left of the gateway at Palace Barzellini in Bologna; as figures not loaded like guards, are they utilized at the portal of Palace Rangoni in Parma.

Note 175. From Contino, F. Le Fabbriche piu cospicue di Milano.

Grandly treated is the gateway, if a portico be placed before it, which opens in columns with horizontal entablature a
572 and an arch in the middle, as at the Mercato in Perugia, where the entrance to the arched portico is further particularly emphasized by projecting columns. (Figs. 446, 447).

The motive has a grand effect, transformed on a great scale, as at the passage through the portico of the Uffizi in Florence with the triple window over the arch and the standing figure arranged there, as well as the two reclining forms (Figs. 448, 449). Vignola returns to the simple form on his portal in Caprarola.

As erratic must be designated the decorative treatment of a portal, as represented on the so-called Gate Bombardierea in Verona, where the flanking columns are shaped like vertical columns standing on calfskin heads or drums and covered at top by a plate, on which rests a mortar as a support for the balcony. Arms, trophies, helmets, powder horns and trumpets decorate the shafts of the accompanying pilasters and the jambs of the gateway, while the parapet of the balcony consists od small gun-barrels alternating with pedestals of trophies.

573 As a jest is to be regarded the gateway of House Zecchino in Rome, that is represented as the "widely opened mouth of a

grotesque devil, and a long nose hangs down over the round a arch as a keystone."

289. Gateway Closures.

Portals constructed of bricks either exhibit simple members like the windows, or also have pilasters and mouldings of terra cotta made in larger pieces, to which reference has already been made. (Bologna).

The gateways next the street in harmony with the other architectural precautions taken for the safety of the occupants of the house or palace, also had such as these;-- solid ground story walls with few openings, windows commencing high above the sidewalks (so far as this does not concern houses with shops), the arrangement of the master's residence in the upper story, gratings over the ground story windows, the closing of the windows by strong oaken shutters beset by iron n nails, etc., and these experienced no further artistic development, particularly in the first time of the Renaissance, w where in the insecure political conditions in the cities, the same means for protection were used, as were introduced in t the middle ages.

We find at first strong framed wooden leaves, which were e entirely covered by iron plates, fastened to the wooden parts by nails and rosettes, with which by alternation and arrangement a sort of decoration was attempted. The door leaves hung on heavy straps and pins; fastening was effected by plain iron bolts (Fig. 437.e; from a palace doorway in Genoa). Any one desiring admission must call the attention of the doorkeeper by rapping with the metal knocker (iron or bronze).[176]

Note 176. Gate leaves covered with iron plates are still found on Palace del Municipio, on Palace Franzoni in Albaro, and on Palace Gambaro, where also a small entrance door is a arranged in the great leaf of the door.

After the form of the old window shutters on Palace Strozzi indeed were also constructed those of the court doors, that must also show the woodwork externally, where men again had recourse to the antique framed work, in which the panels were not large, but the framing was strongly joined and beset by rows of nails (with round and pointed heads), for which can also be found a model on the framework of the bronze doors of the Pantheon. As an example of such simple doors serves Fig.

437 a, which was constructed in the Monastery of S. Lorenzo in Florence.

574-575 A perfected development, that at the same time became typical, where the plain panels were decorated by richly carved rosettes, occurred later. The nailing of the framework is there retained (see Palace Guadigni at Florence), and the door leaves shut into a frame beset by three rows of nails (Fig. 450). With these are to be considered the beautiful entrance doors in the ground story of the Uffizi, with the pear-shaped nails and the grated transoms.

Instead of the rosettes are inserted painted panels on the court doors of the Palace in Pienza, that bear at the top a flower with a small half moon (indication of arms), but where the nailing of the framework still remains.

But also this kind was again transformed; in its place appears the carved framework, whereby originates the most beautiful treatment of Renaissance doors, and we reproduce in Fig. 442 those on Palace Archbishop in Lucca as a prominent example. To these severe forms stand opposed in the late time the bizarre forms of the Barocco, whose beginning is already shown in the portico doors of the Uffizi, which bear the arms of the Medici.

576 The Italians employed in France, who introduced the new architectural style there, also remained true to the ground principle afar from home, to not lavish too much ornament on t the street doors. Under Francis I they adhered to the nailed framework intersecting at right angles and with pointed panels (House in Orleans) and likewise under Henry III (House in Toulouse), even if between these under Henry II leaves flanked by little columns also occur (House in Narbonne). Freer o becomes the structural and decorative treatment, first with Louis XIII, that increased until Louis XV, to again return to the supposed classical under Louis XIV. Door panels with pediments, longitudinal panels rounded at top and bottom, perforated panels closed by carved wooden rounds or iron gratings, an alternation of round, oval, long and cross panels, adorned by medallions, delicately carved little figures and heads, f festoons of fruits, recurved panels with cartouches, masks a

577 and the like, appear instead of the severe architectural forms, lighter construction in place of doors for offense and

defense, only desired as elegant closures, that have to prepare those entering for the likewise ornamenta, interior. [177] (See also the window gratings of wrought iron in the ground stories of many palaces in all cities of Italy.).

Note 177. See beautiful examples in Daly, C. Motifs Historiques d'Architecture et de Sculpture d'Ornament. Paris. 1869. Vols. 1 and 2.

290. Frames and Fixtures.

In the richer examples, the door leaves mostly shut into s separate wooden frames, that frequently project 2 ins. and e even more into the clear doorway as wide frames; but many shut in the still antique manner directly into the stone jambs. There they hang on pins with flat straps; but nowhere are left visible the fixtures for fastening or those required for movement; in no case do they appear in an ornamented art form, a and do not disturb or cross the surfaces and mouldings of the joiners' work in even the simplest way.

The woodwork is left in the natural color of the wood in t the early time, merely being oiled and varnished or coated w with oil colors in the time of the decadence. Relief and pattern ornamentation on the metal coverings are shown, for example in Genoa.

291. Door Knockers.

In all phases of the style the door knockers preferably continue an object of artistic treatment, whether made of unpretentious iron or more valuable bronze. [illegible] and their figures of the gods, animal forms (Neptune with seahorses or dolphins), fanciful beings, masks and plant ornaments were combined in charming and very striking works of minor art. Venice, Verona and other cities preserve a great treasure of such peculiar inventions of Renaissance art. We give two simple examples from Rome, one from a private house, the other from Hospital S. Spirito (Figs. 451, 452).

292. Niches.

Besides the windows and by wider spacing of the axes, either rectangular recesses, segmental or semicircular niches animate the wall surfaces between the window openings, mostly intended for the reception of figures, but which even now have not always reached their places.

Palace Bartolini (later Locanda del Nord) in Florence exhi-

exhibits this motive on the four piers of its facade with three windows, that the Renaissance borrowed from the late Roman art,[178] executed in a systematic and effective manner. As a characteristic motive of decoration is there employed, exactly as in the antique time, the shell, whose hinge is either placed at the centre of the semicircle or the crown of the arch, from which point its ribs extend outward (Figs. 453, 454). Translated into the grand and monumental, we find the shell(conca) on Villa Falconieri near Frascati (Fig. 314), on Villa Sacchetti and on the garden facade of Palace Vatican. But likewise with wide intermediate piers and broad angle piers, we again find the charming architectural motive; thus f for example on Villa S. Colubma in Siena, on the piers of the Uffizi and on the angle piers of the Mercato Nuovo in Florence, there with a separately wrought support for figures. The imposts of the niches, with the use of shell decoration, are a accented by a plain band or by richer mouldings.

Note 178. See Part II, Vol. 2. Baukunst der Etrusker und Römer. 2 nd edition. p. 417, 418. Of this Handbuch.

As suggestions were also tried the rectangular flat recesssin the window piers of Palace Pandolfini, while they are s sunk deeply on Palace Bartolini, and perhaps were intended to receive ornamental work. On Palace Pandolfini they have rather the character of panelling.

The further animation of the wall surfaces by pilasters, c columns and caryatids was already considered with palaces, t the construction of facade surfaces with dressed stone, split stone, bricks, and their covering by means of majolica, plaster and its decoration by sgraffito, shaded and fresco painting, animation by stucco ornamentation, mosaics, and facing with variegated or precious kinds of marble were mentioned, so that we merely name these here on account of the connection.

293. Balconies.

The balconies, that lent a stronger relief to Renaissance facades, either extended along the entire facade of a building, were limited to certain parts, or also to only single windows thereof. Palace Pitti has continuous balconies in both upper stories, Palace Uguccioni has one such in the second s story.

These balconies are structurally formed by projection of

pieces of cornice above the lower walls and by recessions of the wall of the upper story, whereby is produced a not too strongly expressed separation of the different stories from each other. Men thus also obtained a certain degree of safety for the use of the balcony, when a part of the balcony slab had a bearing on the solid wall of the lower story (Fig. 456). Still more safe was the procedure indeed with but slightly projecting balconies on Palace Pandolfini, that entirely rest on the masonry. (Fig. 456). Such arrangements could only be executed with thick walls; with those of less thickness, one must resort to the supported balcony, as it is common in the entire South and has also become naturalized among us in the North. It generally consists of stone slabs projecting 3.0 to 3.3 ft., the supporting consoles and the balustrade. The slabs mostly accord with the story belts in depth and section, are plain on the underside or have shallow coffers (Fig. 455, Palace Labbia in Venice), and according to the projection of the balcony, are supported by at least two or a greater number of consoles, often combined in pairs.

294. Balcony Supports.

The balcony supports in their artistic forms are either to be referred to an earlier wooden construction, or to stepped projecting beams ending in volute form. The consoles or the projecting pieces of the beams are frequently supported by columns or caryatids, particularly if the balconies are arranged over the entrance doorways.

295. Balustrades and Railings.

Following mediaeval tradition, in the Early Renaissance the balustrades were executed in stone and in the form of small columns, which were placed in a definite arrangement with angle and intermediate pedestals, and were finished by a heavy moulded cap; thus they almost always stand directly on the b balcony slab without the interposition of a separate plinth. 520 Their height is usually 3.3 ft. and also somewhat more. The little columns sometimes belong to the Doric, or sometimes to the Ionic or Corinthian order, when the shafts are smooth or fluted.

296. Balusters.

These small columns in the time of Giuliano da Sangallo give place to the so-called balusters, free supports like candi-

candelabras. They sometimes exhibit a form opposing the load, sometimes depressed by it, or both forms proceed from a neutral middle, one directed upward and the other downward. Like the little columns, they likewise belong to the different orders. D'Aviler distinguishes between Tuscan, Doric, Ionic, Corinthian and Composite balustrades; his countrymen divide them into "piedouche", fluted, paired, banded, paneled, rustic, urn-shaped, returned, vase-shaped." Besides those with circular sections also occur those with square or rectangular returns; compressed and elongated forms were often employed beside each other on Venetian buildings, even those less happily ornamented by grotesques (for example on Palace Pesaro in Venice), and besides the simple and plain treatment of the surface, there occurs, according to the nature of the material, the richest ornamentation on certain parts of the baluster. In Fig. 174 are given some baluster forms of the late e epoch. Instead of the architectural supports also occur free forms for the same purpose.

Perforated balustrades between the stone pedestals as a balustrade panel are exhibited by the balcony on Palace Contarini in Venice, and a balustrade with ornamented slabs, on which are sculptured in strong relief arms, chimeras, Medusa heads , etc. are shown by the balcony of Palace Aiboola in Brescia ((Fig. 457). The small balcony on the Cancellaria in Rome likewise has a solid balustrade of stone slabs with arms and o ornaments in skilful work.

297. Iron Railings.

A balcony railing entirely of iron and of beautiful workmanship is preserved on Palace Bevilacqua in Bologna (Fig. 281). A balcony arranged at the angle of the building with an outlook on two streets, by the use of a diagonal support and a s small exit doorway, is to be found on Palace dei Diamanti in Ferrara. The pedestals of the balustrade frequently receive special caps with spheres, or with crouching little lions as in Venice, a motive borrowed from the middle ages. As a railing of wrought iron may be mentioned a "stair railing in wrought iron" in a house on Via Mazzoni in Arezzo, but which is not of Italian design.

521 298. Bay Windows, their Exterior, and Examples.

Bay windows on private houses are authenticated in Grecian

and Roman antiquity; Arab architecture made the most extensive use of these projecting structures, which animated the facade even more extensively than the balcony. Whether and how far the early Renaissance employed these projections is now hard to state; that men took care to remove them, wherever existing, has already been stated, and the reasons given for this. The architecture of the grand style indeed could not begin too commonly with this addition, which was such a favorite in the late German middle ages and in the German Renaissance. It has again come into honor at present in more frequent use in all historical and even non-historical styles, t though not always improved in form.

On smaller buildings and with stories not too high, the bay window on the exterior ever remains an effective piece of decoration, and is justified more in a northern than in a southern climate.

As a bay window in the good time of the Renaissance may be taken a moderately large projecting structure, open at the sides, but covered above, but not freely developed from the facade, rather in a protected location, placed at the projecting corner of two buildings. It rises from projecting stone beams with balustrades on two sides, a stone column at the angle,
522 that receives the wooden architrave with coffered ceiling extending from the external walls. A small doorway in the wall permits access from the house to the bay window; above the d doorway itself proudly appear the arms of the Medici, carved in stone. It is a well known small architectural fragment, which is to be found in most sketch books of architects visiting Italy, and was published in modern times by Gnauth in t the work mentioned here. 179 (Roschdorff).

523 At the carnival time were, and still are transformed the b balconies of the palaces of the Corso in Rome into bay windows, when above the stone balustrades of the balconies are constructed pretty glazed and roofed wooden structures, that afford for the occupants and their guests a protected place during the carnival festivals on the street.

Similar to these are also the two still preserved roofed b balconies on the Castle and on Palace Roverella in Ferrara. At the latter the bay window is indeed a work not originally planned on the dignified brick facade subdivided by pilasters.

For the entire width of the wall surface between two pilasters, it projects in the form of a half octagon over the main entrance portal, carelessly intersecting the beautiful terra cotta frieze and the architrave between the second and third stories. It is constructed of woodwork painted a brownish-yellow; the angle supports are formed of small piers like Doric, the intervals are filled by great glass windows, the bottom is contracted in ogee form without any ornamentation of the surfaces, and is painted the same color as the woodwork; the hip roof is not very steep and is plainly covered with metal, and is painted a slate-gray; on its apex stands a bronzed eagle with extended wings. The exterior appears to have originated on the ground of impressions received on this side of the Alps; it might just as well stand in the Tyrol or in Nuremberg (Fig. 453). On the bay window on the Castle at Ferrara, see Section XX and the Note. [180]

Note 180. See Müntz, E. Histoire de L'Art pendant la Renaissance. II. Italie. "The Golden Age." Paris. 1891. p. 423 (with the incorrect name of the place as Florence instead of Ferrara.

Not on the house, but rather on princely palaces have been preserved other examples, and indeed in Palace Ducal at Urbino. Between the round towers of a narrow facade, an open bay window extends through four stories, which shows in the basement a closed substructure, but in the stories above is an open projecting structure, covered by semicircular tunnel vaults, whose ends are adorned by Corinthian columns with intermediate perforated balustrades. The uppermost ends above the antique main cornice with a volute-shaped termination with an eagle (Fig. 245).

A bay window resting on consoles, with richly decorated panels, ornamentally treated main cornice and only extended for one story, is constructed on one of the court facades with such noble details and such happy proportions, that may be designated as a model and characteristic of the style.

299. Loggias.

Serving for the same purpose, the loggia must be termed another architectural motive of facades. It affords greater space for an assemblage of persons, an absolutely secure standing place and protection from rain and sun. In Venice, air-

already in the middle ages, it was a favorite architectural arrangement, and it forms a characteristic motive in Venetian palace and house architecture of those times, and during the entire duration of the Renaissance to this hour. From Venice it must have made its way to the rest of Italy, and it enjoyed permanent favor, particularly in villa buildings in Tuscany and also in southern Italy. But likewise on the greatest palaces, for example, Palace Farnese in Rome, it again appears. In a modest yet expressive way is one executed on the V Vineyard di Papa Giulio outside the city walls of Rome (Fig. 460).

The loggias of Tuscan palaces opened like a story beneath the roof must not be confused therewith, since these already,
524 on account of their elevated position, had nothing to do with the purpose of a balcony or an outlook, in order to be able to enjoy the life of the streets.

The loggia here intended is to be regarded as a front and connecting room between the best living rooms located next the street.

300. Balustrades and Attics.

With the main cornice does not terminate the facade in all cases at top for both public and private buildings; men frequently sought to introduce a stronger accenting of the upper ending, a finer termination of the masses. Fra Giocondo (?), on his Palace della Ragione in Verona, attempted by placing free statues at regular distances, what had been already tried on the main cornice of the Cathedral in Siena. The arrangement looks rather dry. By placing a balustrade, consisting of plinth, pedestals with intermediate little columns or balusters and a continuous cap above the main cornice, the upper termination becomes more effective and imposing, which can be still increased by placing free figures on the pedestals. Compare in this sense the terminations of the facades above the main cornices of Palace Comunale in Brescia, on the Basilica of Palladio in Vicenza, on the Library of S. Marco in Venice, ar well as Figs. 257, 258, 269.

But the closed structure above the main cornice in the style of the Roman triumphal arch most always remain the most expressive ending of a monumental building. It is even elevated by the addition of statues, by the arrangement of reliefs and

of tablets for inscriptions. Its effect is again lessened by the insertion of window openings in its front. These become parts of a low occupied story, as frequently the case on the palaces of Palladio, on which the balustrade must give place to the window front (Palace de Porti, Palace Valmarana, both in Vicenza), or the addition becomes a structural attic story, as on Palace del Monte in Bologna -- which is indeed too much of a good thing. To an addition of a different kind by batt-
525 lements above the main cornice reference was made previously at Palace di Venezia in Rome, which was also executed on Palace Malagutti in Bologna, in both cases for practical reasons, with the purpose of a possibly better defense of the house. At Fountain Trevi in Rome above the attic without windows is further placed a balustrade, an overloading of terminal motive on account of intended better appearance. (Figs. 257, 258, 274, etc.).

301. Pediments and Belvederes.

The antique pediment scarcely appeared on the house in the good time of the Renaissance; the later masters first employing it, but then only with a cautious obtrusiveness. Almost none of the villas of Palladio, and not even his palaces, are without it, not merely over the porticos, but over certain parts of the building, rising as supported by columns, or also above the plain surface of the wall. The Palace del Tribunale in Bologna, the Palace in Caserta, some buildings in Milan, the Villa in Poggio a Cajano above the columnar portico, Palace Contarini in Venice, above the loggia, etc., it appears, though mostly in a modest way.

The tympanum is then commonly ornamented by a great shield of arms with foliage and fluttering bands, while the three angles of the pediment (two ends and the apex) are accented by free figures, and this particularly by Palladio.

In general, church architecture retains the pediment as a most expensive motive.

In the outline of the dwelling frequently appears the loggetta and belvedere, structures like loggias extending above the roof. On a closed substructure stand square masonry piers, connected by slender arches on architraves and supporting a low hip roof, forming a room open on all sides, that serves as an outlook, as well as frequently for a drying room or for

managing the housekeeping. For the villas the belvedere seems to be regarded as an indispensable addition. It exhibits an artistic form at Villa Lante in Bagnaja, at Villa Medici in Rome, etc., a plain form on rural villas (Bellinzona and other places).

But belvederes may also form the termination of the enclosing wall of a garden, as a charming but no longer existing e example on the street before Gate Pia at Rome still exhibited in the year 1867 (Fig. 461).

302. Chimneys.

Another but artistically doubtful accessory above the roof was formed by the chimneys. They are and remain a necessary
526 evil for the flat roofs and at best retain their purely useful form, with which men are satisfied in most cases. An artistically imposing development, such as occurred in the French
527 Renaissance, retaining the high mediaeval roofs, was refused to the Italians, and what they undertook in this direction w was of little value. Vignola constructed a chimney with cap in the Villa di Papa Giulio near Rome, that Letarouilly first published; Serlio [182] gave others of square, octagonal and c circular external forms, where the smoke sometimes escapes f from the apex, sometimes through slits in the sides; he says of them particularly, "according to the custom of Italy." Of another somewhat oddly constructed, he says on the contrary, that it is "after the French fashion;"before I saw any like it." We give in Figs. 462, 463, some of the former. Rubens gives in his work on the palaces of Genoa (Palace Spinola (Prefettura)) representations of chimneys above the roof, whose beauty must also be termed doubtful. An entire small book on Venetian chimneys was written by G. M. Urbani de Gheltof, [183] with the addition of 320 drawings by Luigi Zanzi. According to form, they were distinguished as bell, crushed bell, trident-forked, classical and monstrosity! Certainly a pretty list of flowers, a selection from which is found in Fig. 463.

Note 181. See text, p. 454.

Note 182. Book VII of his work on Architecture. p. 75.

Note 183. 1892.

303. Dormer Windows.

Dormer windows are variously treated in Serlio's Book VII,

but always only in connection with steep roofs; hence these always exhibit the French character (Fig. 159).

Dormers have a square or rectangular window opening; the enclosure is plainly moulded and bears a roof with pointed gable or one in segmental form. Likewise circular window openings within rectangular enclosures with segmental caps were also constructed.[184] (See Section IX. Roof Construction. Figs. 159, 160).

Note 184. See Serlio. Book VII. p. 163.

304. Covering and Form of Roof.

The Vaulted roof covered with mortar of the small houses in the South (vicinity of Naples, Capri, etc.), the flat antique red tile roof with flat and hollow tiles, the covering of plane roof surfaces with sheets of lead (Venice) and sheet copper; the covering of vaulted roof surfaces with the same materials, thus with tiles and metal (Cathedral in Florence, Umilta in Pistoja with tiles, S. Peter in Rome, Basilica in Verona with metal), the defective mode of removal of water, the lack of collecting gutters on stone and wooden cornices, and of conducting pipes, the covering of strongly projecting belts by tiles (Uffizi in Florence) bedded in mortar -- have already been treated, and may be but briefly repeated here on account of the general description.

305. Heraldic Ornament.

Ornamental additions of importance are the massive stone shields of arms of prominent and princely families on houses
578 and public buildings. Every one took care that his name should be transmitted to posterity in a monumental way with the buildings erected by him. In affixing the family arms the R Renaissance followed a mediaeval custom, which in that time was expressed in a more restricted manner, but was more freely conceived and employed in the new art, and was especially embodied at larger scale. The flat or slightly curved long triangular shield with point downward disappeared, and gave place to more flexible forms; tilting helmets with spreading ornaments (beautiful examples of such are on the vaults of t the Bargello and of the Loggia dei Lanzi in Florence) vanish, and in their place appear cardinal's hats with conventionalized and symmetrically arranged tassels, the papal tiara with the great keys of S. Peter, or open ducal coronets and the

doge's cap of the republic of Venice. The oval form, which is surrounded by rich cartouche work, is preferred for the shield.

Apparently suspended from great stone consoles (in volute form) with flying bands, the shields of arms ornament the angles or wall surfaces of buildings. (See Fig. 464, the massive papal shield of arms on the angle of Palace Archbishop in Florence). A richer example remains to us still on the angle of Palace Comunale at Prato, adorned by the balls of the Medici, where two small female figures standing on consoles support the arms (Fig. 465).

306. Metal Decoration.

As ornaments in metal, and indeed mostly of plain iron, but elevated to art works by the hands of artists, we have to mention on the residences, especially in Tuscany, the torch and banner holders, the ring fastenings, the holders for receiving protections of windows and the lanterns.

Those already on Gothic buildings and on those of the transition style formed a part of the minor decorations of the f facade, as shown by Fig. 466 [185] from Palace Vitelleschi in Corneto. What the improving period of the Renaissance made of this primitive Gothic form, or how it transformed this into an art work, is shown by the lanterns on Palace Guadagni and Palace Strozzi. A representation of such is given in Fig. 467, and in Fig. 468 one of a banner holder with a fastening ring, which may be designated as a masterpiece of the smith's art, beside which can only be placed the similar pieces in Siena. Somewhat ruder but still interesting are the holders on Palace del Podesta in Bologna.

Note 185. Reproduced from Boffi, L. Il palazzo Vitelleschi in Corneto-Tarquinia. Milan. 1888.

SECTION XVII. COURTS IN HOUSE AND PALACE ARCHITECTURE. FORM AND ARRANGEMENT.

Courts with Piers and with Columns. Admission of Light and Air. Elevation and Subdivision of Facades. Free Supports, Arch and Architrave. Decoration by Painting, Sgraffito and S Stucco. Palladio's Courts with colossal Order, Galleries and Terraces.

307. Courts with and without Porticos.

Living and business rooms and state apartments in the house are grouped around an open court after antique custom, and a are connected together by doorways and passages, and by stairways with the different stories. In smaller dwellings the walls of the stories enclose the court; for larger houses and palaces covered porticos are placed before these, so that the different rooms are also made accessible from them. Thus these surround the court, either on but one, on two, three or four sides. As examples thereof may be taken:-- as a building without a portico court, the little House occupied by Michelangelo Rome; with portico on one side, the casino of Villa Cesi; with porticos on two sides, Palace de Romanis and Palace Patrizi; with three porticos, Palace Lante, Palace di Firenza and Palace Vicolo del'Oro; with four porticos, Palace Farnese, Palace Sciarra, Palace Negroni, Palace Borghese, Palace della Cancellaria, Palace Sora, etc., all in Rome, as well as a great part of Florentine, Genoese and Milanese palaces. Men sought apparently to enlarge small courts by additions or by perspective deceptions, (Palace Spada in Rome), or by the arrangement of niches with fountains and flower beds. Great courts were also crossed by porticos to make them appear considerably larger. (See Palace Montecatini, Palace Bossi, Palace Angelo Massimi and Palace Pamfili in Rome, the wonderfully beautiful and moderately large court in the Certosa near Pisa, with the draw well in the transverse portico, and t that of Palace dell' Collegio Elvetico at Milan).

530 308. Forecourt of Honor.

As already stated, the Renaissance did not stop with these simple rectangular or square court plans; it also introduced (see Serlio, Book VII) the elliptical plan, the circular and polygonal forms into the sphere of its architectural activity. Likewise the forecourt of honor with or without a semicircular

termination, Serlio did not disdain to propose. R. Redtenbacner (Art. 200) desires to allow the court and stairway arrangement to play a principal part in Italian palace and house architecture, and promises to treat them on a grand scale, o but in the course of his treatment of stairway arrangement, he forgot the courts. The truth of his assertion, that they play a principal part, cannot then be contested.

Like the form of the ground plan, the design of the court facade occurs in different ways. Either the porticos are only arranged in the ground story, then above them rising the stories with windows in harmony with those of the fronts, or even in a diminished number, to supply an increased and better access of light and air to the interior of the court, as this was done in the Palaces of Urbino and of Caprarola (Fig. 484), at the Sapienza in Rome by Giacomo della Porte, and then at Palace Strozzi in Florence and others. Above this the uppermost story is also further treated as an open story (colonnade with horizontal entablature), as on the street facade of Palace Guadigni and on Palace Vatican in the court S. Damiano by Raphael.

Instead of the internal court also occur those open at one side, thus forming smaller or larger courts of honor, where the enclosure next the street is effected by a blind wall with the entrance gateway and one story in height (Peruzzi at Palace Linotte in Rome, and in the form of an atrium at Villa Sauli in Genoa; see Section XIV, Villas, and Fig. 335), or they open toward a rich garden theatre, as at Palace Pitti and Genoese palace courts.

309. Architectural Development of Courts.

The architectural development of courts was not sparing; o porticos, windows, wall surfaces and cornices have the same treatment as the street facades, if not even a higher artistic effect, at most that in general and details they were more finely harmonized, and frequently had no similarity to the e effect of the facade on the street. Compare in this respect the Florentine rusticated palaces, i.e., their street facades with the facades of their internal courts.

On the brick palaces of upper Italy is retained the same e ground idea, only there the contrast is not so abrupt, being softened by the nature of the building materials. Next the

streets and in the internal courts are the same love of ornamentation and the same refinement of the details. The courts are entirely arranged as paved courts after the antique manner, i.e., the rainwater (on half) is led toward the interior. Pier courts and columnar courts are distinct; both kinds occur at the same time. For the former the Gothic, for the latter the Romanesque and the antique architecture supplied the inspiration and the model. Piers of octagonal cross section occur in the great court of Palace Doge in Venice, and in very pure form in the court of the little Palace di Venezia at Rome, the massive structures, indeed commenced in Gothic. L Likewise Bolognese palaces adopted it. (See pier capitals in the court of Hotel Brün at Bologna, cross sections of piers in the ground story of Palace Doge, and pier capitals in the little Palace Venezia. Figs. 200, a, b).

531 532 533 But at approximately the same time was employed by Bramante the antique Roman rectangular pier with projecting half column (great court in Palace di Venezia at Rome) and pilasters, and recourse was had also to the antique colonnade. (Palace courts in Urbino and Gubbio by Laurana in 1468, Fig. 478).

The late Renaissance time and the Barocco style employed in the court of Palace di Venezia the first mentioned antique R Roman rectangular pier with half columns and pilasters, frequently extending through all the stories, without entirely r rejecting their love for columns. Then coupled columns were preferably taken, as proved by the courts of the Brera, of Palace Marino in Milan (by Alessi in 1555) and of the Seminary Arcovescovile, of College Elvetico there with its double courts, then particularly the courts of Genoa from the Jesuit p period,(University, Palace Ducale, Palace Durazzo, Brignola, Tursi-Doria, Grimaldi, Lomellino, Lecaro and Spinola), and f finally the magnificent court of the Borghese in Rome. (Figs. 471, 482).

310. Venetian Courts.

Venetial palaces, in the treatment of their courts, do not bear the average character of Lombard, Florentine, Bolognese or Roman courts. They are not attached to a harmonious great plan on account indeed of the peculiarity of their local conditions, but yet in their Palace Doge, they possess one of t the grandest and most magnificent designs of courts in the

world. Contrasted with this in the same place is the indeed most simply constructed with piers of square cross section, the court of Fondaco de' Tedeschi near the Rialto Bridge, a plain pier court about 38.6 ft. square.

Piers with pilasters in three stories and with galleries extending around are shown by Palace Cornaro, and by Palace Grimani in smaller proportions, a beautiful arrangement of two courts of unequal sizes. Rectangular piers with arches are also shown by the Milanese Palace Arcivescovile, and the same motive with a construction of piers, arches and pilasters with rusticated ashlars in the court of Palace Thiene in Vicenza. Here is also a periodic return to simplicity!

The pure and simple columnar court of the Florentines is r retained by Laurana and also the great Bramante in his Cancel-
534 laria court, even if he once departed from it at S. Maria della Pace. The masters of the late Renaissance and of the Barocco did not first again adopt the Roman rectangular piers, strengthened by pilasters and half columns, but it was rather the great architect of Urbino at about the change from the 14 th century. The court of S. Maria della Pace and before it the court of Palace di Venezia -- and not of Palace Farnese -- are milestones for the renewed adoption of the pier and its treatment in the Italian Renaissance after the model of the antique Roman theatre and amphitheatre.

The free supports of porticos are connected after the antique manner by a horizontal entablature (architrave, frieze a and cornice, or by arches resting directly on the columns or on an interposed block of the entablature. The straight entablature is declared to be most dignified by L. B. Alberti. (Fig. 472). More frequently straight pieces of entablature alternate with the arches, and this is required by coupled c columns, and is effected in the most charming way in the small court of the Brotherhood dello Scalzo in Florence (Fig. 473).

The porticos extending around the court space are not of e equal width on all sides (Palace Giugni, Palace Strozzi, Flo-
535 rence). Within these are frequently arranged the stairway to the stories (Palace Archbishop, Fig. 474, and Palace Gondi in Florence). For small dimensions of the court, the stairways frequently reduce its entire area, surrounding this on three sides.

311. Free Supports.

With the earliest kind of free supports in the architecture of the court, is the octagonal pier taken over from Gothic, as shown by the little Palace Venezia at Rome, and as exploited by the court of Hospital S. Giovanni dei Genovesi there and some of the Bolognese courts. The solutions of the forms of capitals there are interesting, particularly when this concerns the Corinthian order. Sometimes the bell is made octagonal like the shaft; at other times it passes into the complete circular form at top, and accordingly the acanthus leaves are sometimes placed on the angles of the bell, or sometimes cover its flat surfaces. (See the forms in the court of Hotel Brün in Bologna and Palace Fava there, where it is also shown how the forms of capitals are completed, when two half columns are attached to the sides of the square nucleus pier).

312. Angle Supports.

For the courts with square piers or columns, the form of t the angle supports is always an object of thorough study or reflection, sice each master of importance attempted something different. Those of the early Renaissance, which employed octagonal piers or columns, like the ancients also placed at the angles the same piers, that they employed at the sides. Since they chiefly used the Doric or Corinthian order, and both forms of capitals could be employed anywhere without tr-
536 ansformation, then the question solved itself; and when the Ionic came into use, men were naive enough to place the bolsters all toward the same side, as is the case in the loggia of Villa Careggi and in the oblong court of the Certosa near Florence. Bramante desired in his high court facades in the Cancellaria at Rome to have the angles appear stronger, at least to the eye, and he replaced the angle columns by angle piers. The architect of the court of S. Pietro in Vincoli at Rome hit upon the odd solution of the angle, when he placed two half columns at a right angle to each other, and thus obtained a heart-shaped cross section of the angle support. In the court of Palace Borghese at Rome the master arranged a s square pier at the angle with two complete columns at two sides. Less simple became the case with the use of square piers with projecting half columns, as at Palace Farnese in Rome, where Sangallo employed a projecting angle pier and attached

half columns. Likewise in the court of the Collegio Romano was attempted a peculiar solution, and Cigoli in the court of Palace Non Finito at Florence also chose the heart form, but made it somewhat stronger by the projection of pilasters. It is then interesting, how he managed with the diminution of t
537 the columns, and returned the members of the capital around it. Palladio strengthened the support of the angle in one
538 case by setting three columns at the angle; at another time by employiyg piers with half columns, he set a projecting pier at the angle, giving it the same projection as the attached half column.

Scamozzi likewise employed piers at the angles, but placed columns beside them only at the smaller sides of the court, and compensated for unequal intersections of the columns in the court by selecting the architrave for their covering. In all circumstances, this permitted a greater freedom in movement than the use of arches.

318. Archivolts and Spandrels of Arches.

But the kind of angle support again had as a result peculiarities in the archivolts, since only for a square section of the angle pier, such as Bramante employed in the court of the Cancellaria at Rome, was possible a classical solution of the imposts of the archivolts without mutilation. All Tuscan columnar courts (Fig. 476, courts of Palace Strozzi, Riccardi a and Piccolomini), where angle columns were used, exhibit such at the intersections of the archivolt sections. At the junction of the arch mouldings on the intermediate columns, men adhered rather to solutions, such as occur on Palace Diocletian at Spalato and on late Roman buildings in Syria, than to forms from the best eriod. On Palace Rector in Ragusa was employed a half mediaval way, the moulding dying against an inclinned surface, which does not look like master Michelozzo, but is still suitable for use as coming from him. Also for the moulding of the archivolt recourse was occasionally had to t those of the late Roman style,[186] when this was treated as garlands of fruits and flowers or surface ornaments in the f form of interlaced scrolls. (Arch in Maddalena de' Pazzi, etc. at Florence).

Note 186. See Part II, Vol. 2. 2 nd edition. (Fig. 454, p. 410) of this Handbuch.

The arch spandrels between the archivolts and cornice were then either simply enclosed (see Palace Archbishop in Florence), or they were beset by medallions bearing rosettes, as in the second court of S. Croce in Florence, while the small angles thus produced were filled by cupids and ornaments. Instead of rosettes also occur medallions with figures, as for example in the court of Hospital Maggiore at Milan (Figs. 477, and 5 of the street facade of this building).[187]

Note 187. From Cantino, F. Le Fobbriche piu cospicue di Milano.

539 314. Architrave.

Where architraves appear instead of arches, these must be especially constructed for larger spans, and like the ancients, the Renaissance had recourse here to the straight arch. We find this mode of construction boldly treated in the court of Palace Maffei at Verona, where the antique architrave members with triglyphs are interrupted in an original way by a rusticated straight arch (Fig. 148).

315. Brick Arches.

Entirely differently treated in form are the arcades, when bricks are the building material for the arches. On the surfaces was then developed the entire luxuriant world of form in flat figure and plant forms, such as is peculiar to the brick architecture of upper Italy southward to Bologna. Cupids climb up vine branches, cupid's heads with wings and the like fill in wide bands of fronts of the arches enclosed by few decorative members, and which are ornamented by flat ornaments or if constructed with plain voussoirs, may be surrounded by a decorated arch.(Certosa near Pavia; buildings in Ferrara, Faenza, Bologna; Fig. 87).

The great arch spandrels are also here ornamented by medallions containing figures, the smaller ones having painted or relief ornaments or again small figures. With the wide archivolts of the great court of the Certosa near Pavia, their i intersections are marked by small figures standing before them consoles,and the execution is still more richly treated by the use of polychromy. A peculiar decoration of the arch spandrel is effected, when cut stone, stucco and glazed terra cotta alternate, so that the free supports, arches and horizontal mouldings are of cut stone, the spandrels are plastered,

and the plastered surfaces are filled by glazed terra cottas by Robbia, as done in such a splendid manner on the porticos of the great court of the Foundling Hospital there, at the H Hospital del Ceppo in Pistoja and other places. (Also see Pl.3).

316. Court Facades.

An attempt to shape the cross section of an angle pier in an appropriate way was made by Laurana in a quite analagous manner in the courts of the Palaces at Urbino and Gubbio (Fig. 540 478), where to be especially considered is the arrangement of the quarter columns on the inner side. The masters Laurana or Pontelli arranged the matter. A bay of the court facade of about the time from 1468-1482 is given by a representation in Section XXa, Palace Buildings, which shows in what a perfected manner Laurana understood how to"appreciate"the antique 541 details. The court is one of the most beautiful in Renaissance art anywhere, and indeed has an impressive effect by the symmetry of the proportions and the beautiful details, and n not least by the happily chosen scale, by whose grandeur one is actually amazed. Free and airy, not too high, appears this classical court design.

A peculiar attachment of quarter and half columns at the projecting and reentrant angles of the piers of the middle p part of the central facade occurs on Palace Ducale at Genoa. Indeed somewhat too much of a good thing! (Fig. 478). On the contrary the court facades of Palace Piccolomini in Siena rather too little witheir still almost mediaeval elevations. (Fig. 476).

But the Renaissance did not stop with the solution of simple problems, and what Jacob Burckhardt so strikingly stated, "that the courts of Roman palaces comprise all combinations conceivable, the most skilful pier construction with half columns and the most beautiful porticos" -- that applies to the courts of all the smaller and the larger cities of Italy.

Of these combinations the court of S. Maria della Pace must precede with its horizontal connectein of the ascending supports in the upper story above the lower arched portico.

Likewise the solution of the arcades in the upper story in doubled smaller arches above the wide arches of the lower story, separated by a wide and rich ornamented frieze in Palace Bevilacqua at Bologna, is a logical architectural idea, which

542 is there charmingly expressed.

543 Elegant and yet massive is the effect of the court enclosed by four facades in the Cancellaria at Rome with the two similar porticos over each other, yet with graduated height of t the columns, and above these the two mezzanine stories animated by small windows, which are externally combined into one story by colossal pilasters. The proportions betweey the dimensions of the area of the court and the height of the enclosing facades belong to the finest ever created.

Likewise grand and even more massive is the effect of the court of Palace Farnese at Rome with the porticos on piers in the lower and middle stories, with the closed walls of an upper story only animated by windows and triply divided pilasters. Both in this court design surrounded by high story facades, and imposing in effect, as well as in the small graceful courts filled with poetry and grace, Renaissance architecture stands alone and unsurpassed, where it gave new form to a primitive idea, required by changed conditions of life. T The mediaeval court of the Castle of the Visconti in Pavia m may be taken for a comparison in what concerns symmetry and the richness of details.

Also to beautiful smaller courts in private houses, particularly in Bergamo, attention was already directed by the corresponding illustrations.

317. Court Designs of Palladio.

Palladio made novel and interesting experiments in several of his buildings, when he sought to introduce the colossal o order also in the internal courts. The massive columns extend through two stories, their shafts are subdivided by consoles or projecting piers, which have to receive the architrave and entablature of the gallery in the upper story (see Palace Porto in Vicenza, Fig. 479) -- a solution for necessity, but not organic. He also experimented with translations of Grec-

544 ian-Roman atriums into the language of the Renaissance. His Tuscan and tetrastyle atrium, the atrium testudinatum (covered) -- a covered court with high skylight -- show (Fig. 479) what he desired. Worthy of consideration is the arrangement of ceilings and roofs for the buildings, which exhibit externally the colossal order and a two story arrangement in the interior. (Also see the arrangement in the Temple at Paestum,

Baukunst der Griechen, in Part II, Vol. 1 of the Handbuch).

318. Court Facades with coupled Columns.

With great charm and great dignity are the court facades with arcades on coupled columns, to which reference has already been made at Palace Marino in Milan, and whose details are
545 more fully shown in Fig. 480. The vertical lines of the columns are continued above the impost entablature in the form of consoles with lions' heads, which serve to a certain extent to enclose the interposed rectangular panels adorned with figure reliefs.

More by size, simplicity and beautiful materials with the rejection of all ornament, contrasted with the court of Palace Marino with its overrich decoration by ornaments and figure sculptures, is the effect of the magnificent courts of t the Brera in Milan (Fig. 481) with their plain arches on the severe coupled columns.

Transformed into a flat surface, with rhythmic placing of half columns and interrupted piers, which only show plain ashlar masonry in the ground story, are employed the coupled col-
546 umns, at least in idea, in the interestingly constructed facades of the palace Court at Caprarola (Figs. 483, 484).

Extending through two stories are the court facades of the Archiginnasio at Bologna. The porticos extending around it rest on square piers, that are subdivided in the ground story by pilasters of the Doric order on pedestals, and instead of triglyphs bear cartouches of arms in the frieze. The vertical subdivisions extend to the roof cornice, but not through this. The mouldings are simple and noble.(Fig. 485).

A variation has been made by the court facade of the University at Palermo in extending the verticals by the addition of small herms piers between the columns of the second and third stories (Fig. 486). The conclusion, that the last is not always the best, applies to the court with spirally twisted columns in Palace Marzano in Turin, that indeed originated under the influence of G. Guarini (Fig. 487).

A special charm is further presented by courts with the use of costly materials for their architectural parts (marble and granite). But also the colored, i.e., dark and bricks (Cremona and Bologna), ordinary limestone and sandstone remain in honor, as well as the primitive plastering. The addition of

548 plastered surfaces by paintings (palaces in Lombardy, particularly the Palace in Milan, formerly Aliprandi-Tavecchi, now called Ponti, . color illustrated in Gruner), by sgraffitos or stucco-work (Palace Spada in Rome), contribute to make the internal space comfortable and homelike, as a quiet and cool stopping place in the hot days of summer.

319. Decoration and Closure of Courts.

Arrangements of flowers and plants within palace courts appears to be excluded, since only stone slab and paved floors are found with a slope toward the middle for removing rainwater. But a decoration by statues, vases, potted plants and fountains is still possible, as Fig. 488 shows. In the court of Palace Doge stand the bronze well curbs of Alfonzo Albergati (1559) and of Nicolo de Conti (1556), and in those of Palace Vecchio and Palace Gondi in Florence are the pretty little draw wells.

Metal latticed gates as closures of the court arcades or of the entrances to the porticos are found indeed; but they mostly do not belong to the good epoch, or they lack all higher art form. The best still preserved there are found in the c churches as chapel closures in bronze and iron. (S. Maria in Organo in Verona has precious little grilles 3.3 ft. high from the 17 th century, that merit consideration for beauty of composition and grace of workmanship. Others are found in S. Petronio at Bologna and in Rome.). 188

Note 188. Beautiful illustrations of metal gates from the 1. th and 16 th centuries, from Rome, Lodi and Milan are to be found in Gruner, Pl. 64. Other references are given under Ecclesiastical Buildings.

579 But the most magnificent closure will always be that on the Loggetta near the Campanile on the Piazzetta in Venice, the w work of Antonio Gai, ornamented by figures and trophies of a arms.(Fig. 489). Another and simpler grille with spears, bedis and scrolls is to be found at the main entrance of the Arsenal in Venice, etc.

SECTION XVIII. INTERNAL ARCHITECTURE.

Enclosures and Leaves of Doors, Mode of Construction, M Materials, Wall Paneling, Tapestries and Painted Wall Surfaces, Treatment of Ceilings, Mode of Execution, Wooden and Vaulted Ceilings, Floors, Fireplaces, Privies, House Baths.

The internal architecture of the Renaissance ought and cannot here busy itself with all the technical details in the b building, which belonged to it at that time, and that is especially true for the work of the times, glaziers and locksmiths, so far as these concern the fixtures of windows and doors. Likewise certain works of installation are excluded, which form a chief part of our modern internal architecture. The artistic fixtures and fastenings for the windows and also the doors belong to the French and not the Italian Renaissance, and even these only late became a profitable exercise of art industry. The same is true for artistic glazing. Whatever is necessary was said in Section XVI (Windows and Doorways), of the fitness, the charm of material and its basis. Indeed also the climatic conditions of the country did not so strongly lead to a refined treatemnt of the articles mentioned, (arrangements for closing windows), as on this side of the Alps.

320. Doors to Passages and Rooms.

Doorway openings in the interior of the dwelling always form an upright rectangle averaging 1 to 2, sometimes a little more or a little less. The enclosures are either plain or membered after the manner of stone window enclosures, thus showing the architrave like a band as in antiquity, with and without ears (for example, with such see the doorway enclosures in the hall di Leone X in Palace Vecchio at Florence), tolerably wide, this frequently amounting to 1/4 or 1/5 of t the clear width of the doorway opening. More richly treated are the architraves with similar accessories, as mentioned f for windows, by consoles with straight or pediment caps, both often merely painted in addition to the architrave in relief (doorway at the end of the loggia of Raphael in the Vatican) or enclosed by columns with antique entablature and pediment (hall de' Duanto in Palace Vecchio at Florence), or in the m most costly manner in the antechamber of Palace Doge in Venice with figures reclining on the pediment cornices. The enclosures are not always of the same material as the leaves of the

doors, but more frequently, with the omission of all mouldings, are made of the most costly and richly colored kinds of marble. (Palace Pitti in Florence, antechamber of Palace Doge). The play of its colors and veining makes mouldings superfluous.

530. Models, beautiful and pappropriate,are treated and ornamented the doorways of the salon in the Palace at Urbino at a relatively early time of the Renaissance (1468-1482). They merely enclose the openings and are free from all bombastic accessories, with which the later epochs were so lavish. The accompanying apparatus of pilasters, columns and accessories does not appear here. With just propriety and quiet is the problem solved. Next the opening is first the narrow band like a fillet, (see the doorway in the throne hall), followed by a broad decorated band, richly ornamented by fruits and emblems, and then again a narrow enclosing fillet, decorated but slightly, above being a horizontal crowning frieze with festoons of fruits or palm ornaments, as the highest and crowning termination being a slightly obtrusive cap.(Fig. 443, Doorway di Guerra).

According to the clear width, the openings were closed by single or folding doors, constructed of light and of heavy k kinds of wood, divided after the antique custom into frame a and panels. Those of the time preceding the Renaissance do not show on doors and coffers proper cabinet work, but rather only grooved carpentry, where the surfaces are mostly decorated by paintings and are carelessly crossed by iron fixtures. In the 14 th century first appears the proper framed cabinet work instead of grooving. The panels extending between thicker frames then first have the width of a board (6.7 to 9.8 ins).

Serlio gives in Book IV (Chap. 10) of his Architecture single doors with four, five and six panels, just as they have continued in use until today, and folding doors with three to five panels in each leaf. In both cases the leaves swing on hinge straps.

As materials for richer doors are preferred walnut or chestnut, pearwood and cypress wood being more used as inlays; still the coniferae (larches) are not excluded for ordinary conditions.

The fixtures disappear in the woodwork, and only the knuckles

of the hinges remain visible; the fastening is either not indicated or only by small key escutcheons. (Doors of Vatican loggias, door of hall in Palace del Comune in San Savino).

So-called doubling occurs on great and small doors of the early Renaissance, by which on a flush framed paneling is planted an intersecting framework, externally forming rectangular, square or lozenge-shaped panels. These then mostly exhibit the fastenings and also iron nails set in a definite arrangement, plain or ornamented, as for example on a small door in the court of S. Croce in Florence, on the larger doors of Chapel Colleoni and of the former Medici Bank in Milan. For t the larger leaves of doors is then preferably taken the lighter larch wood; there the great leaves of doors swing on very simple and rudely wrought pivots, or fit into sockets like t the antique stone or metal doors. The doors of medium size in the state apartments of Palace Doge at Venice partly swing with hinge straps on pins; they are also partly fitted with semigothic longitudinal iron bands, which are then entirely gilded. For vertical and horizontal fastening bars for the doors mentioned, men restricted themselves to the simplest
557 form for the purpose and omitted all ornament; only the closing knobs and handles of keys exhibit an artistic development.

For the simplest treatment, the doors remain entirely plain, both in the framework and the panels, where the changes from one structural wood to another is made by mouldings and bands, or for a richer treatment the framework remains plain and the panels are covered by carvings (Loggias of the Vatican), or both framework and panels are carved, the intersections beset by rosettes, as shown in the finest manner by the already mentioned door of the Palace in Monte San Savino.[189] More dignified and nobler is the treatment, if framework and panels r remain plain, only the mouldings being ornamented with the a addition of the rosettes. As an example serves the simple a and noble door of Library Laurenziana in Florence; each leaf there has three panels of equal size of walnut wood. Here l likewise belong various doors in Raphael's Stanze with five and six panels with frets and branches on the frame, eggs and heart leaves on the mouldings, as well as on the astragals a and quarter rounds.[190]

Note 189. Published in von Geymüller.

Note 190. See Redterbacher, R. Vorbilder für Tischlerarbeiten. Collection of selected cabinet works of the Renaissance in Italy. Part 1. Carlsruhe. 1875. -- Unfortunately in t this otherwise faithful publication is not given everything, that one might desire to know in construction; nowhere the t thickness of the wood, nowhere the mode of connection, and nowhere anything on how and where the leaves shut!

A beautiful division is acquired by folding doors by inserted round pieces, that are decorated by lions' heads with ring knockers in their mouths, as exhibited on the entrance door at one end of Raphael's Loggias, a masterpiece of Barile, in what composition and carving of ornament requires. The circular piece, the adjacent longitudinal paneling, and the entire door with its surroundings are given in Figs. 490, 491, 492.

The woods are mostly left in natural colors, oiled and varnished, or they are also stained reddish-brown, yellow or dark brown and waxed.

Relief decoration for frames and panels was preceded by intarsia, i.e., inlaid work in woods of different colors, to w which are also added frequently inlays of metal, mother of p pearl, ivory and ebony. Of metals came into use; gold, silver, bronze, copper and tin, to which might be added precious stones as inlays.

(Colored woods in combination with metal inlays to a small extent are found on the backs of choir stalls, for example,
532 with intarsias and wonderfully graduated in color, in S. Domenico at Bologna, and indeed the most beautiful pieces in the choir of the Church S. Maria Maggiore and in Chapel Colleoni at Bergamo).

This art extends back into high antiquity; it reappears in the middle ages; we find in France in the inventories of Charles V (1380) and of the Duke de Berry (1416) pieces of furniture executed in this manner; we see it in Italy in the earliest time of the Renaissance, already in the highest degree of perfection.

Yet we must here distinguish between incrustation and marquetry. In the former, the wood is removed to a certain depth according to the drawing, then filled with a more or less costly material. In the second, veneers of wood, mother of pearl,

copper, etc. are laid on each other and sawed through at the same time, then inserted in each other according to the design. Thus are obtained intarsia and counter-intarsai, so that one may have the same design in light on dark ground and the reverse. The veneers are placed on the structural parts.[191]

Note 191. Drowings of intossios ot full size ore to be found in Gruner, L.; Specimens of Ornomentol Art, London. 1850, and in Teirich, V; Ornomemte ous die Blüthezeit der Italienische Renoissonce. Vienno. 1872. The occomponying text on the occurrence ond the history of intorsios in Itoly until the 1 17 th century gives interesting conclusions. Likewise the e explonotion of the technics of intorsios is cleor. The veneers hove o thickness of 1\16 inch ond the wood covered is 1 3\8 ins.

Until the end of the 14 th century, marquetries consist of geometrical patterns, mostly executed in black and white; but after the beginning of the 15 th century by the help of stained woods, landscapes, architectural interiors and historical pictures are produced, to which is added all the richness of wood carving and of metal inlays. Tortoise shell and gilded bronze, the so-called Boule furniture. (Andre Charles Boule. 17 th century).

A final degree of ornamentation was received by the leaves of doors by painting in different colors with the gilding of certain parts, use of this being gladly made by the Barocco and Rococo. (Color of wood with gold, or white and gold, but also green, red and black coatings with colored varnishes, t the ornaments being lighted with gold). The high Renaissance employed in painting, grotesques, bouquets of flowers, figure compositions, still life and landscapes, which cover the usually large panels.

The structural parts are properly joined together, treated and ornamented. We do not find aberrations, such as occur in the German Renaissance, for example, where the dividing member is formed as a pilaster or half column, that instead of b being fixed and supporting, describes a quadrant! When covering bands are generally used for folding doors, they are formed without accenting the top or bottom. (See the door in the Vatican Loggias).

321. Paneling.

Following the doors is the paneling of the walls, that may extend to the ceiling, or only cover a portion thereof to a certain height, and is carried around the room to the top of the window bench or is only quite low. Wainscot and base are with us the usual designations of both kinds of paneling. W wainscot on the walls, also termed woodwork by the French, p paneling in north Germany. When this paneling does not reach the ceiling or to the middle, it commonly forms the base for the ascending wall decoration. The division of the walls of living rooms into base, dado with or without subdivision into panels and frieze with a cap moulding is as old as architecture itself. All the peoples of antiquity proceeded according to the same principles, and after them the middle ages and t the Renaissance, and the most recent time also retains them. But not always was the procedure in the execution of paneling according to the same ground idea. The ancients, likewise the Byzantines, Arabs, and the masters of the Romanesque architecture conceived it as a sort of tapestry decoration, or in the division into frame and panels, i.e., in the adoption of panel work, they proceeded in accordance with the principle, that Gottfried Semper clothes in the words:-- [192] "The framework and tracery must never overpass the paneling, i.e., the f filling, the latter must remain the chief thing, the proper motive, and accordingly must be treated richly and like tapestry; the enclosing structural elements must serve it, never dominate it.

Note 192. Der Stil. Vol. 2. p. 235.

To this ground principle the Gothic also adhered in the first period, while it did not overpass the proper limits of t the structural; afterwards in covering the wall, it fell into the monotonous form of blind tracery.

The Renaissance rejected this pattern and returned to the ancient artistic mode, when for this internal decoration participation was again offered to the sculptor and painter. As already stated, it adhered thereto even for the doors constructed on the same basis.

Likewise for this, frames and panels in costly woods were covered by marqueteries, paintings and gilding, left in the n natural color of the wood, or covered by uniform coatings of definite color. Thus proceeded the Italian masters engaged

in France (Serlio, Primaticcio and Others), as well as the n native masters (Chateaus in Fontainebleau, S. Germain, Anet and Gaillon).

The entire 17 th century in France cherished the fashion to ornament the paneling by gilding and painting. Marshal Richelieu had the panels of the base decorated with obscenities ("very immodest figures in relief at the centre of each panel") -- the unworthy end of an otherwise good means of ornamentation.

555 In the year 1751 instead of wooden wainscot appeared glass painted on the back and all sorts of genuine and imitated marbles. With the adoption of Gobelin tapestry as a wall decoration, paneling must generally disappear or sink to wainscot and low base.

The ground idea of constructing the wainscoting with large panels is expressed in the representations of Palace Doge at
556 Venice . (See hall del Collegio, hall del Senato, hall dei Maggior Consiglio and the Anticamera). There pilasters generally separate the plain red panles of the woodwork, whose ornamental members are enriched by gilding. The greatest simplicity prevails in the cabinet-work, in the wainscot of these apartments, that are furnished with simple seats, above which is developed the greatest decorative splendor ever created. Just this contrast between the simple lower architecture and the magnificent upper architecture perhaps allows the latter to appear so much the more effectively and grandly. We find a similar arrangement in the hall de'Dugento of Palace Vecchio in Florence. What other time than the Renaissance could have created such works? What other art ever had at command this wealth of means of expression and such masters!

As a work of the elevated style must be designated the equipment of the working room of a prince, the Duke of Urbino, in which the paneling exhibits the most perfect and richest intarsias. There ranks therewith the seats, desk, doors and the gallery of the Cambio in Perugia (Fig. 493) executed by Domenico del Tasso (1490-1493), A. Bencivieni da Mercatello and A. Masi (1562), which fills the harmonious, moderately l large and vaulted room with the ceiling paintings of Perugino (1499). "No official in the world is seated so magnificently as formerly the exchange judge of the capital of Umbria," said Burckhardt, and with justice.

322. Wall paneling from Pistoja.

To the 16 th century belongs a great work in seats, more a architectural than decorative, of which eight bays still exist in the great hall of Palace Pretorio in Pistoja, a splendid work, but not originally intended for this place, but rather stood in the choir of the Sapienza, according to an inscription attached to the seat. The too richly ornaminted columns standing on consoles, the overloaded entablature, the r richly carved frieze with panels contrast peculiarly with the plain panels, which were treated otherwise before the work c changed its location (Fig. 494). Cabinet work and together with it inlaid woodwork (the art of intarsia) was also particularly practised , "largely and nobly," in Bergamo.

323. Ornamentation of the Borgia Apartments in the Vatican.

The wall surfaces in living rooms were smoothly plastered, painted and stuccoed, hung with tapestries or leather in elegant rooms, particularly in the later time, with fabrics, woven cloths of all sorts, and finally covered with painted or printed paper. Some rooms of the Castle at Milan still show the mediaeval manner of treating wall surfaces, for example, patterns appear with red medallions arranged side by side and ornamented by arms, and are uniformly extended over walls and the vaulted ceiling, and the like. The Borgia Apartments in the Vatican are again made accessible, and give us a reliable illustration of the decoration of wall surfaces on smooth plaster. In the hall dei Misteri the walls are divided in panels, that extend down to the floor (thus the walls lack a base), and these are separated by pilasters with panels of variegated grotesques on a gold ground. The panels themselves were indeed painted with golden lines on a blue and green ground, and have been restored in this sense. In the hall d dei Santi a high wainscot with a projecting row of seats forms the plinth of the wall; it is subdivided into two rows of square panels over each other, whose grounds are alternately d decorated by ornaments and by architectural views. above to the ceiling cornice is painted a tapestry pattern. In the
559 hall delle Arte Liberali is executed a peculiar subdivision into panels with brightly colored geometrical figures, medallions in the frieze with scrolls, such as we find again in

the early Christian mosaic pavements in churches, and in the great hall dei Pontefici are arranged wall paintings with arabesque enclosures, together with panels having tapestry patterns. In the hall del Credo then again occur divisions into panels with tapestries of geometrical patterns, in the middle being a medallion with the papal arms.

324. Painted Walls.

Wall paintings in fresco (1481) separated from each other or enclosed by pilasters or arabesque borders, which are mostly painted in gray on gray or brown on brown with gold ornamentation, to which give place about 10 years later the borders with grotesques (Borgia Apartments, 1498), succeed these tapestries with linear ornaments or flowers. Executed in the most perfect manner is such a wall decoration in the middle hall of the Royal Villa Poggio a Cajano, in the hall dei Dugento (or Dugento = Senate of 200 in Florence) of Palace Vecchio, and also there in the hall dell'Udienza above a painted imitation marble base with panels, grotesque ornaments on a light ground covering the entire wall surfaces in the Quartiere di Leone X. Instead of figure compositions sometimes appear also views of cities and landscapes (Palace Vecchio). In Venice and Verona (Villa Bocca-Trezza), instead of the great figures commencing directly below the ceiling beams is arranged a broad figure frieze 6.56 ft. high with a dark ground, that extends around the entire room, when the wall surfaces are covered by a plain coating of a single color.

In a room of Casa Vasari in Arezzo they are divided into t two parts in height, the lower covered by paneling and the u upper by landscapes in painted borders surrounded by festoons; the allegorical figures there appear rather as additions.

By the uncovering of the Baths of Titus, the mode of decoration found there, the combination of stucco and painting, w was adopted by the Renaissance masters. As the most beautiful example of the success of the new method are to be mentioned the decorations of the wall surfaces of the Vatican Loggias. As the ornamentation of a room where the paintings are enclosed by architectural strongly moulded stucco frames, the tops of the window recesses also being architecturally moulded, are ornamented by arms, cartouches, little reclining figures, garlands of fruits, medallions and busts, may be menti-

mentioned the hall di Leone X in the apartments di Leone X of Palace Vecchio in Florence.

325. Introduction of Gobelins Tapestry.

Painted walls disappeared when the Gobelins tapestries became common, that soon supplanted all other modes of decoration, where the means permitted, and where men could or would follow the fashion; and it is not to be denied, that halls a and living rooms first became somewhat warm and homelike by their use, which naturally ensured great success to them.

These were fabrics woven with woolen yarn (twisted), mixed with gold and silk; the oldest were made in Arras, from which they derived the name of Arrazzi in Italy. Already in 1380 was mentioned in the inventory of Charles V a representation of a battle -- "a great cloth of work of Arras" -- ; in the accounts of the prioress of Hospital Hotel Dieu in Paris (1395) are included fabrics of Arras, and what was called "cloth of Arras" in the 14 th century, was nothing else than "tapestry with high warp." In the inventory of the Bastile in 1420 are named a bed covering on black ground, woolen tapestry of Arras, and such others of silk and gold.

The manufacture was stopped by the siege and the horrible treatment of the city by Louis XI, and at the end of the 16 th century tapestry in Arras had entirely ended.

Two Flemings, de Commans and de la Planche, introduced it into France in 1625, and by an edict of 1667 the manufacture was taken in charge by the State.

The tapestries of Raphael (1515-1516), intended for the lower part of the walls without paintings in the Sistine Chapel, were executed in Brussels in wool, silk and gold. Copies of these tapestries adorned until 1359 the walls of the rooms dell'Imperatrice in Corte Reale at Mantua (now in Vienna).

559 A representation of a Gobelins tapestry with wide border of ornaments and little figures as characteristic of the treatment of this decoration by fabrics, from the time of Louis XIV of France is given by Fig. 495. [123] The manner of placing a Gobelins tapestry is to be seen in the "hall del Museo" in Parma, which exhibits the Medici arms in the left side border. Likewise it is to be learned there, how the corresponding pieces for use and decoration were exhibited in halls, as hangings at windows, tables, chairs, great fireplaces, etc.

Note 193. From Hovard, H. Dictionnoire de l'Ameublement et de Decoration.

In the middle of the 16 th century "Florentine Arras" excelled, taking up the manufacture of every kind of arras with c considerable orders from Ferrara, Venice and Bergamo. (Cathedral S. Maria Maggiore). The cartoons for these, which were all enclosed by borders, almost without exception came from the studio of A. Allori until 1582. A valuable collection of these picture tapestries, of products of Florentine tapestry weaving, old fabrics and embroidery from the 14 th and 15 th centuries, as well as articles made of velvet, gold brocade and damask from the 14 th and 15 th centuries, is arranged in the upper rooms of the Archaeological Museum in Florence.

Florentine tapestry weaving came under Duke Cosimo I in the year 1545 through Nic. Karcher and Jan van Root from Brussels to Florence, and it ended with the fall of the house in 1737. As master of the cartoons besides Allori are mentioned also Bronzino, Salviati and Bacchiacci, and finally also P. Fevere from Paris, who brought the imitation of paintings by the Gobelins to the highest perfection, and conventionalized it to degeneration. See also the spirited little essay of Professor Dr. Marc Rosenberg at the opening of the Gobelins exhibition in Carlsruhe on May 28, 1907. "New Gobelins can scarcely be added, for all attempts to make them by machines have failed, and a work in which a man produces a half yard in a year can no longer find a commercial basis in the revolutionizing of working conditions in our time. Our increase only consists of one gobelins annually produced in Paris, and of one completed every 25 years in the papal manufactory.

The hangings at first mentioned of stamped, painted and gilded leather, that indeed notable material, disappeared about the end of the 16 th century from courtly circles, but maintained itself in those of the citizens and of the lower nobility until in the 17 th and even the 18 th centuries; they were still mentioned there in 1659 and 1765.

326. Hangings of Leather, Brocade, Damask and Paper.

In the inventory of Catherine de Medici (1589) were still mentioned red, green, blue, orange and variously colored leather hangings, also black with silver, to which belonged div-

dividing strips, that were decorated by devices, monograms a and arms.

In the second half of the 17 th century were the walls covered with brocade, damask of different colors, velvet, satin etc., and there were mentioned brocade with gold, silver and silk grounds, Florentine brocade, brocatello from China and from Flanders, Lyons and Venice.

The green damasks were preferred by magistrates, the yellow by artists and actors, and this continued until in the second half of the 18 th century. About the middle of this century was introduced from the East painted linen, which was retained until nearly the teme of the French revolution. Besides this painted papers were common, which were made in France as beautiful as the imported oriental, and which extend back to 1675.

With the 19 th century ceased the beautiful luxury of cloth hangings of walls, and generally gave place to printed paper. "The new conditions of our social life, the uncertainty of o our furnishing and our tastes, the continual transformations of our dwellings and our fortunes, sufficiently explain the high favor enjoyed by it," says Havard (Dictionnaire de l'Ameublement et de Decoration" from the 18 th century to our time. Paris. 1880), and we likewise complain of the uncertainty in matters of good taste today.

327. Beam Ceilings.

For the ceilings of living rooms and of state apartments o prevail two ground forms produced by the difference of the materials; horizontal wooden beam ceilings and vaulted masonry ceilings. For the former during the early period was retained the tasteless mediaeval type, whose beams extend with narrow intervals from wall to wall, or are laid from girder to girder, according to the size or depth of the room. The beams therefore as frequently lie parallel to the wall containing the windows as at right angles to it. In many Veronese and Venetian painted ceilings the spaces between the beams of small dimensions are not greater than the width of the beams. The beams themselves are covered by boards, whose joints are concealed by battens; such strips also extend along the sides of the beams, so that small shallow coffers are formed. The transition from the ceiling to the wall is made by a richly

carved wooden cornice, consisting of cyma, quarter round, dentil band and ogee moulding, below which then extends a picture frieze or the plain wall panels, as stated in the preceding Article. These wooden ceilings, mostly in a half mediaeval way, were still painted with full colors, the plain wooden surfaces being of a single reddish brown color, also frequently covered by brightly colored flat ornaments in blue, yellow, red, white, black and green colors. In a hall with two windows in a Florentine house 19 ft. deep, the ceiling is divided in two parts by a beam 7.1 ins. wide; the small beams measure 8.6 ins. square and rest on the larger beam and on the division wall with a free span of 8.7 ft., are covered by boards, and the joints are concealed by plain rectangular battens, on them being laid a layer of mortar and tiles as the floor for the upper room. With the joint battens 1.8 ins. wide is then produced a kind of paneling of the ceiling.

This simplest treatment was then followed by the great coffered ceilings of through beams, arranged with intermediate timbers inserted at right angles, and richly covered by carvings, a mode of treatment of the ceiling, "in whose magnificence the Renaissance knows no limit." Beautiful examples of such wooden ceilings with square coffers and rosettes on the panel, with the richest carved ornamentation and rosettes set on the intersections, are found in the frequently mentioned hall de' Ducento and in other rooms of Palace Vecchio, also in Palace Gondi, and simpler and lighter in Palace Guadigni in Florence.

With the twofold accenting of the series of beams and of the intersecting timbers, the ceilings attained a high degree of richness when large and small panels alternate with each other, but still always properly constructed. A classical example of this kind is a ceiling constructed of fir wood and brightly painted in the great hall of Palace Massimi at Rome,[194] with white rosettes on a deep blue ground and accompanying brightly colored ornaments.

Note 194. See Letarouilly. Vol. 999.

But the subdivisions of the ceiling resulting from the construction were abandoned in time and freer divisions appeared in their places; hexagonal and octagonal coffers are arranged beside each other and extended like a tapestry stretched over

of the room. Square and acute-angled are inserted between t the polygons, that are again compelled to yield to round forms of different kinds. Geometrical figures are combined in favorite general designs.

In Book IV of his "Architecture" (Chap. 12; On plane ceilings of wood and on their ornaments)" Serlio gives on 9 pages a great number of motives for such ceilings, from the simplest to the richest type, and proceeds thus:-- The ancients called such ceilings "lacunarii" (paneled ceilings); Romans now call them "palchi"; in Florence, Bologna and the entire Romagna men say "tasselli" of the them, and in Venice they are c called "travementi" and "soffitada." Likewise in these free forms Peruzzi has executed some ceilings in Palace Massimi at Rome in the most charming manner, that by color and gilding (white and gold, the ground of the octagonal coffers being o blue, of the square ones red and of the long panels green) r reached a climax of magnificence. These heavy coffered ceilings are always intended for strongly colored decorated walls, the richest of which is indeed preserved in the hall de'Gigli of Palace Vecchio at Florence. Great wooden coffered ceilin-
562 gs, chiefly executed in blue and gold are to be particularly mentioned in the Castle at Trient. Left in the natural color of the wood, without any addition of orient color, is the wooden ceiling of Library Laurenziana at Florence, with its partly capricious and unquiet details. Uncolored likewise is the magnificent ceiling in the Badia at Florence, which as a church ceiling is only mentioned here on account of the fact. For the ceilings of the early Renaissance in palace apartments, the decoration is richer and more fanciful, so that the o ornament predominates. Charming examples of this kind are t the ceilings in the hall de'Busti and chamber a Letto in Palace Doge at Venice; gold on blue, executed with the greatest magnificence -- where rosettes occur instead of coffers. A painted coffered ceiling of the good time is to be found in the upper story of the School del Santo in Padua.

First in the rooms of Palace Doge at Venice, instead of this always architecturally effective wooden ceiling, occurs a another and novel conception, whose large shapes of carved a and often strongly Barocco gilded frames are formed on the c ceiling, on which a "naturalistic illusion" is attempted, when

the observer is expected to view the painted stories within the gold frames as actual occurrences. But thus only the great principal ones are executed, while the painting in the s subordinate panels as treated as gray on gray, brown on brown, or like bronze or copper.

The provision of such quiet points in the decoration otherwise in magnificent colors with the massive and rich gilded frames is well arranged, and it always heightens the general effect of these stately ceilings, which belong to the most c complete of their time.

Gilded carvings in a peculiar distribution form the heavy frames, which enclose masterpieces of painting of the highest rank, creations of a Paolo Veronese, whose charm can be rejected by no man, whether gifted or not, and still I may subscribe to the saying of Burckhardt:-- "The stately lower wainscoting, the doors with their statues on the pediment caps, the pompous fireplaces with allegorical figures above and herole atlantes beneath complete the impression of authority, which prevails in these halls. But for a comforting and pure harmony, this will rather be found in the rooms of the time of R Raphael."

328. Vaulted Ceilings.

Vaulted ceilings are mostly restricted to the forms of cloister and mirror vaults, with and without lunettes, which are most common to the Renaissance. But the tunnel vault is also justified for porticos and lofty halls (Poggio a Cajano), and where, as for example for loggias cross vaults are employed (Palace Doria in Genoa), this only occurred with the removal of their groins, so as to have a free field in the decoration of the surface. Only the transition style and the earliest period leave the cross vault in the true mediaeval form, and also decorate it after mediaeval custom, when the dividing r ribs and compartments are treated separately, when the latter are adorned by medallions and grotesque work. The vault surfaces for cloister and mirror vaults are terminated below by impost cornices; they separate the vertical wall from the ascending vault, which leads to the great ceiling panel. This is either enclosed by a geometrical, or in the Barocco time, by a capricious frame.

563 Repeated on the ceiling in a more thorough and spirited man-

mayyer is what already makes itself felt in the decoration of the wall; the combination of stucco and painting, wherein the ornamental art of the Renaissance soars to the highest undertakings. According to the time and the means, we find the c ceilings sometimes merely light or painted in two colors, then rising to the richest charm of color with the assistance of gilding.

Likewise here prevails at first more severe architectural subdivision, then the greatest freedom for painting, as for those of Pocetti in the corridors of the Uffizi at Florence, in the porticos of Villa Carreggi and elsewhere.

Genoa possesses in the rooms of Palace Doria and in many o-other palaces examples of the most magnificent type. The Borgia apartments in the Vatican exhibit model examples in their halls. The Farnesina, the gallery of Palace Farnese, the Loggias of the Vatican, as well as Villa Madama near Rome present the noblest, that human genius has ever created in this domain.

The late time is generally satisfied with a light coloring in the rooms of palaces, or by the natural color of the material, and it arranges in the middle of the ceiling a great and variously colored oil or fresco painting, as Tiepolo did in a splendid manner in the great hall of Palace Canossa in Verona. From the Barocco time the ceilings executed by Pietro da Cortona and Guido Parigi (1586-1669) in the upper story of Palace Pitti at Florence deserve all praise with their stucco-work and pictures in the richest gilded frames; these transform the halls covered by them into state apartments of t the grand style.

329. Floors.

Above the ceilings lie the floors, which may be constructed on solid vaults by filling the spandrels and a smooth coating of mortar, or there is arranged a separate and independent s support for receiving the floors, or the ceiling and floor a are one, as generally the case with those constructed of wooden beams.

The covering were most simply and cheaply made of plaster or cement, of marble slabs or mosaic for richer buildings, or of burned tiles of various shapes or glazed tiles. Made of planks in the earlier time, in the later time men returned

to wooden construction, but in the form of parquetry.

Floors in "Venetian terrazzo" in variegated flat patterns are to be found in Palace del Te, for example. When mosaic floors are employed, the well known ornaments from the Early Christian and Cosmati times are repeated, where marble slabs were used, those of two or three different colors being employed. Most commonly in the time of the early Renaissance were employed in private houses and also palaces the usual burned red bricks, and these were laid in various patterns on e edge or flat in a bed of mortar.

But the most favorite type was the setting of the bricks in diagonal herring-bone patterns, that appear everywhere, even in churches, chapels and in monasteries (opus spicatum). We find them in the Borgia apartments of the Vatican, in the Duke's Palace at Urbino, in the Villa Papa Giulio at Rome, etc, where also occur divisions by bands into triangular and square panels, in which the bricks are then set parallel to the
564 walls. Besides those normal shapes also occur special tiles of large and small square shape with also elongated hexagons, that are combined in various designs (Fig. 496).

A tile floor in two colors, of light yellow and dark red o burned clay, repeating the design of the ceiling but evidently with a changed surface, is executed in the Library Laurentania at Florence. It was here desired to avoid all great l luxury, which might have diverted attention from the decorations of the wall and ceiling.

Greater charm and richness of color was again afforded by glazed tiles, that on account of their small durability are
565 only preserved to us in scarce remains. In the Loggias of t the Vatican vestiges of glazing may only be recognized on the tiles lying close to the outer walls. In the Borgia apartments from the time of Alexander VI, the ancient tiles were still found in three halls, and were completed at the restoration. Beautiful round and square tiles (majolica tiles) are preserved in the Church S. Caterina, which are given in Fig. 497, after drawings by Weisbach and Lottermoser. Also these are merely simple in design. In a small room of Quartiere di Leone X at Florence, ladi in hexagonal and octagonal tiles, then in Villa Imperiale near Pesaro, and in the Library at S Siena are still preserved ancient specimens. We find them in

566 greater number in many chapels at Venice, in Siena, Rome, Parma,[195] Florence and other places, dated from the times of 1458, 1471, 1482, 1504 and 1510.

Note 195. "Majolica tiles from a pavement constructed in the monastery di San paolo dei Benedetti Badesso in 1471-1482" a are to be found in numbers in the Museum at Parma. Those dating from the time of the early Renaissance are mostly colored blue and white, and as a design bear sometimes a female, sometimes a male portrait, but also bright flowers on a white ground, as well as small entire figures. As a covering majolica tiles covered by cupids were employed on a wall arch in the former Monastery di San Paolo (16 th century). These are likewise now preserved in the same Museum.

Tiles in varied colors were also made by the Robbias in Florence for the Vatican Loggias in Rome. In Naples, but particularly in all Sicily in the better dwellings, glazed tiles in varied colors until the present day form a favorite, beautiful and durable floor covering, safe from receiving dust a and vermin.

In Genoa we find glazed tiles frequently employed as coverings of walls in the narrow stairways of the dwellings of citizens, beautifully and correctly designed in oriental patterns, with a splendid use of color and imitating tapestry patterns, executed as imitations of Spanish Azulejos (majolica t tiles).

Already in the 14 th century, floors of wooden planks were executed in France and indeed also in Italy, besides the clay tiles; but first in the 17 th century they became common in the form of the present parquetry, and replaced tile floors in all elegant residences.[196] "Her sisters were in chambers with parquetry floors, where they had beds more after the fashion, and mirrors in which they could see themselves from h head to foot," says Perrault in his story of Cinderella. If one cannot have everything, one must be satisfied with parquetry and a modern name, writes Madame de Sevigne. In 1692 "Livre Commode" gives a pattern plate of parquetry, and in t the 18 th century (1782) dwellings with parquetry floors are advertised for rent. In the Comptes des Bastiments du Roy a are mentioned wood parquetry by a cabinet maker for the great pavilion of the Tuileries (1679).

Note 198. At the time of the dominance of the Renaissance in France, Italian artists and artisans were engaged in great number, and were employed in the highest positions (Primaticcio). The original statements concerning certain arrangements and technical procedures are less known in Italy, than is the case in France. Therefore we frequently refer to French sources in the assumption, that their meaning must also determine similar cases in Italy. Aside from this, that in the m museums of the Louvre, of Cluny, in Troyes, Grenoble, Auxerre etc., specimens of clay tiles are sufficiently preserved, that we know such were in use from the 8 th century onward in France, and that clay tiles "in relief" replaced the smooth pieces in the 14 th century, which still remained in use till in the 15 th century. The procedure was as follows:-- "Tiles were used, whose upper surface was first stamped, then the stamped recesses were filled with clay of a different color, the whole then being covered by a lead glaze." These inlaid tiles d disappeared and gave place to painted tiles in France toward the end of the 14 th century. Hollanders brought the fashion into the country.

Philip the Bold, Duke of Burgundy, in the year 139. made an agreement with two "makers of plain and ornamental tiles" for the delivery of such tiles. The two "workmen" were a certain Jehan de Monstier d'Ypres and a Jehan le Voleur (thief).

In Rouen in 1.42 were mentioned faience tile floors, and t these tiles were laid in Paris in Mansion Soisson (1.81), also Catherine de Medici ordered them. The change occurred in Italy and France at about the same time.

330. Fireplaces.

Serlio says in Chapter 28 of his Book VII on Architecture:-- "Fireplaces are truly the great ornaments of all dwellings," and he gives four examples of such, as a first in Corinthian style, a second in bastard Doric form, a third in pure Doric, and a fourth in a mixed Tuscan style with rustication.

In Book IV he shows some fanciful compositions of fireplaces. He likewise states, that in Firance the smoke flue was always carried up vertically and served several fireplaces at the same time, wherefore it is advisable to decorate it up to the ceiling. In halls it must further be effective by the m magnificence of its appearance. In this sense as appearing

as a fixed showpiece in the room, it is everywhere conceived from the early time of the Renaissance until its decadence.

567 In Palace Gondi in Florence in the severe style the state fireplace extends rather more than 6.6 ft. high between two single doors in the division wall of a hall with coffered wooden ceiling. Two richly ornamented balusters flank the opening and support a high frieze with naiads and tritons in moderately high relief, which is terminated by a covering cornice, at whose ends stand small antique figures, between which is suspended the great shield of arms of the Gondi with the bent arm and the mace in its hand. As a charming example must also be mentioned the small fireplace in the House of Vasari in Arezzo, enclosed by volutes and triglyph-frieze, and as the greatest Florentine showpiece, the fireplace of Palace Borghorini, now to be found in Museum Nazionale (Bargello), constructed after the same ground idea as the Gondi fireplace,
568 only that instead of the balusters, here are placed little c columns like Corinthian with richly ornamented shafts, that support a complete cornice, beneath which extends the beautiful figure frieze in high relief. Sphynxes crown the ends; seated cupids support the family arms (Fig. 498).

Severely beautiful fireplaces are further found in the Palace at Urbino [197] with remaining polychromatic ornamentation,
569 where the friezes are particularly notable, when cupids with gilded hair and wings project from an azure ground, while the ornaments are in blue and gold and the other architectural o parts are left white.

Note 197. Published in Arnold, F. Der herzogliche Palast in Urbino. Pls. 42-47. Leipzig. 1857.

Simpler fireplaces are to be found in Palace del Te near Mantua.

A moderately large and dark fireplace, whose cornice is borne by white marble consoles with projecting little figures, above it being a high addition with volutes with a white marble medallion in relief at the centre, flanked by two small marble figures, over the medallion being a great eagle between cornucopias, garlands of fruits and scrolled bands, a crowangel figure growing out of the apex, that holds a coronet a above the whole, which extends to the impost of the mirror v vault 18.4 ft. from the floor, is preserved in the great hall

of Palce Doria at Genoa, but which is still far surpassed by the marble fireplaces in Palace Doge at Venice. At the greatest of these in the anticollegio, a work of Tiziano Aspetti after the design of Scamozzi, only the lower part to the cornice is of marble, the upper portion being of white stucco w with gilding. Consoles supported by candelabras or by bent standing atlantes there support the cornice of the fireplace with its high overmantle (Fig. 499).

A magnificent ornamental work with great statues as decorations is the fireplace in the state hall of Palace Magnani-Salem at Bologna (built in 1576-1578 by Tibaldi),which further still retains good frescos by the Carracci. Scarcely any Renaissance palace cannot show such precious showpieces!

331. Privies, Baths and other subordinate Rooms.

Privies were constructed in houses in antiquity. They disappeared and came again, becoming necessary, where cleanliness in the cities was subjected to legal regulations.

According to a small miniature of the Decameron from the 15 th century (Fig. 500), privies at the time of the early Renaissance in country houses were constructed at least in the form of a covered shed of boards with an open space beneath it. At the time of the plague (1533) police regulations were made, according to which the owners of houses in which existed no privies, had forthwith to construct them -- a proof that in the 16 th century house privies were not common in all localities.

The palaces of the early Renaissance exhibit such of mean appearance (Palaces Strozzi and Giugni at Florence, Palace Piccolomini in Pienza), but always properly placed against an external wall with windows. They must scarcely have been used by the masters, for in Italy as in France portable privies (commodes) were used, as frequently today in southern Italy and Sicily. In the inventory of Mansion de Quatremares (1334) is included one of these, and under the name of "wardrobe"such privies occur in 1540. In the 17 th century they remain in use under the same name, and in the first third of the 18 th century are constructed in France and later indeed also in Italy the "English places"give place to fixed water closets, that are then made large and spacious, located in t the vicinity of the bathroom.

Note 198. See Blondel, J. F. and M. Patte. Cours d'Architecture. Vol. 5. Pl. 60. Paris. 1777.

The dancer Mademoiselle Deschamps had such a closet arranged, entirely decorated by mirrors, and (1760) it was particularly emphasized in renting a dwelling in Paris, that also a sitting place also existed -- a wardrobe or "English place." This "modern"arrangement,but soon 200 years old, according to its name made its way from the high North to the South.

In the great work in 4 volumes mentioned below [199] is an a arrangement "for a water closet or convenient place," whose seat is drawn in a recess, that gives the construction of the English water closet with entire clearness, and that substantially coincides with what we are accustomed to designate as an invention of our own days (Fig. 501).

Note 199. L'Architecture Francoise, or a collection of plans, elevations, sections and outlines of churches, palaces, mansions and houses, etc. ----in France. Paris. 1727. Vol. 3.

L. Gruner [200] gives the artistic treatment of a house bathroom in a colored representation under the title of "Bath of Cardinal Bibiena in the Vatican," a view from which we see, that also here the art of the Renaissance fully appears. Over a square room of moderate height with niches rises a cross vault, that like the walls is decorated by brightly painted grotesques of extraordinary beauty. The semicircular recesses are painted like tapestries, and one of them receives the ornamented marble bath tub. A splendidly colored and still comfortable room! The sketch designs for the decoration were furnished by none other than Raphael himself.

Note 200. Gruner. Specimens of Ornamental Art. London. 1850.

By Vasari [201] was further mentioned the stufa (heated room) in Villa Dante at Rome, that Giulio Romano adorned with pictures -- the loves of the gods; then the bathroom, covered by a dome, constructed by G. Alessi in Villa Grimaldi at Brisagno near Genoa. In the work of P. P. Rubens on the Genoese p palaces is given a design for a house bathroom, that consists of a great room, an anteroom, a vaulted octagonal warm bath and also a vaulted cold bath. The walls of both are adorned by niches, and indeed must be assumed as richly decorated and lined with marble. (Figs. 502, 503; plans of bathrooms and kitchens, wherein is also represented the equipment of the

kitchen of a palace with oven, preparing room with dining ro room for servants, all arranged in the basement story.) The beautiful bathroom with the small dome resting on columns in Palace Pitte at Florence is of later date.

Note 201. Vasari. X and XIII. A perspective view (photoprint) in J. C. Raschdorff's Palast Architektur Toscana. Berlin 1888.

SECTION XIX. EQUIPMENT OF STATE AND LIVING ROOMS W WITH PRODUCTS OF THE MINOR ARTS.

Furniture, Ornamental Vessels of Gold, Silver, Bronze a and Clay, Statuettes of Marble and Stucco, Showpieces of Ivory, Precious Stones and Enamel, Mirrors, Art Glass, Panel paintings, Tapestries, Embroideries, etc.

332. Decorative Equipment.

Reference was made in Section XVIII to the technical and ornamental treatment of the living and state rooms, the construction and artistic execution of floors, walls and ceilings, doors and windows. But these remain blank rooms, if at least there be not described the means, whereby they were animated. The control of the master of the house and of the mistress w will only be understood from the articles for use and art, f from the additions created by these and not the architect alone; they first impress character on the home, either that of the possessor or of the cultured father of the family with i intelligence in art.

We must venture on the unlimited domain of Italian art works, if we would create for ourselves an idea of what is offered. The material is so extremely rich, that even to illustrate it but approximately would carry too far here; it must remain a matter by itself. But we must allow some light to fall on it.

333. Furniture.

Like the monumental art, also the minor arts of the Renaissance already appeared in the 12 th century and demanded admission. This was perhaps at one bound. Furniture, gold, silver and bronze works were made after antique models, and pro-
572 ud were the artists who made it, to approximate so nearly. Large and small figures were made of marble and of metal (the so-called salon sculpture), vases of artistic shape from burned and glazed clay; chests, tables, benches and chairs, beds and seats of carved wood, elevated higher by colors, gilding and intarsias (inlaid woods).

334. Surface Ornamentation and Relief.

And the highest of their time busied themselves with designs and works of this kind. Beside the joiner stood the carver and the painter as helpers, so that one did not dominate the entire domain of his works.

573 A chief object of portable equipment was the chest until in the 15 th century, whose panels were painted with Biblical and historical pictures, whose framework was carved and gilded, a brightly colored showpiece, placed in the room for the enjoyment of color. (See examples in Museum dell'Castello at Milan, Bargello at Florence and other places). In the 14 th century intarsias, i.e., the inlaid work, supplanted painting, at first only with the effect of geometrical decorative forms in dark and light woods, here and there with the aid of ivory; at the beginning of the 15 th century were added to the geometrical ornaments also freely treated plant scrolls, palm friezes and the like, together with representations of architectural interiors, historical occurrences and landscapes, for which artificially stained woods were employed, or metal inlays were added. The flat ornamentation was succeeded by that in relief, carving as the highest expression of the mode of decoration. Moderate in extent on articles for use, overrich on show pieces (Figs. 504, 505).

574 335. Chests and Caskets, Wardrobes and Chairs.

Skilful subdivision of the surfaces and beautiful surface ornamentation are the ground ideas, on which is based the construction of the furniture of this time, that unfortunately was abandoned too soon, to give place to the meanwhile introduced overrich and strongly developed relief, against which men were bruised and caught, and that finally reached its unsound climax on wardrobes with the addition of columns, antique entablatures, niches, arcades and balustrades. -- Even b benches and chairs must follow this bad art.

336. Upholstered Furniture.

The still movable cushions and pillars for antique and early Renaissance furniture became fixed parts of the furniture on benches and chairs in the later time for reasons of convenience, and thus appear as the beginnings of upholstered furniture. The upholstered chair exhibited until in the 17 th century a simple, but somewhat stiff form with vertical and gracefully turned legs, or rather curved back and a velvet c covering fastened by gilt pins, with gold embroidery and tassels as special characteristics. It was followed by the Barocco chair overloaded by carving and this again by that with complete cloth covering on a simple wooden frame.

Furniture of the noble metals, entirely covered by repoussee silver, where particularly tables and mirrors come into consideration, was the fashion in Venice at the end of the 16 th century, with which was connected in France the furniture of metal and tortoise-shell, the so-called Boule furniture. Fig. 507 gives an example of a chair entirely of carved wood, and Fig. 508 is one of a mirror frame made of the same material, a Florentine work of the 16 th century. The age of Louis XV made furniture entirely independent of the principles of architecture.

Besides the natural color of the wood, certain parts were further enriched by gilding, which was then followed by the
595 complete gilding of the woodwork. Also the covering of the woodwork by white, greenish or yellowish varnish colors also proceeded, with the addition of gilding. For covering the chairs were employed the most costly kinds of silk and velvet, as well as fabrics woven in different colors and covered by figure designs or naturalistic festoons of flowers.

337. Table tops with inlaid woods and semi-precious stones.

An especially artistic treatment was enjoyed by table tops, which assumed the most varied forms. They were made of simple smooth woods, then ornamented by wood intarsias,of precious sorts of marble, of ebony with ivory inlays, decorated by hard stones (Florentine stones), or by fine mosaics, veneered with costly kinds of stone, and in the early time these table tops in Florence and Venice were not supported by "legs", but by heavy and richly carved wooden blocks, which were later followed by more elegant and often capricious forms as supports. Beautiful examples in perfected execution are to be found in the halls of Palace Pitti in Florence.

Fig 509 exhibits portions of a more architecturally treated paneling of the wall with hermes consoles and niches with figures, in which the good old ground idea of the treatment of surfaces is completely abandoned; for also this, as in furniture, must follow the change in the execution of the details.

338. The Bed.

The same appearance as for chests and chairs also shows itself for beds. The old wooden canopied bed supported by columns gave place to that entirely covered with cloth, for which

kind one dating from the 17 th century in Palace Mansi in Lucca is still exhibited.

The technics and history of chests, wardrobes and chairs is treated by G. Semper in his Stil (edition of 1863, Vol. 2.: cabinet-making, p. 254 et seq., and p. 333, furniture of the Renaissance on p. 325) on the basis of a representation of an Italian wardrobe, from which the system of construction is to be seen. In Fig. 506 is represented a similar piece from Gubbio, constructed and ornamented on the same ground principles. Semper there emphasizes the great fame enjoyed by the Italian cabinet-makers till the beginning of the 17 th century, and he also gives the illustration of an armchair on p. 342 from the Barocco time, and half upholstered furniture from the workshop of Rubens.

339. Chests.

Burckhardt-Lübke state in the Geschichte der Renaissance in Italien (edition of 1878, Art. 157), that the chests of the best period, only a "few still remain, yet sufficient to give an idea of the noble and rich forms thereof." But if one wanders through the modern museums of our great art cities in E Europe, then must one indeed have a different opinion of the
576 number of pieces offered, when certainly the genuineness of all must be subject to some doubt. Those mentioned gave these in different places, and in Fig. 197 a chest from Siena, and in Fig. 198 a partly restored one from the Berlin Gewerbe Museum.

340. Bedsteads.

From the same best period "is scarcely preserved a single bedstead," and also the most exact representation of one by Milanesi (III, 245) dates from the time of the beginning Barocco (1574), and is represented as a canopied bed with a cloth covering supported by four columns. As a prominent state object in the room, the bedstead stands free on three sides. Falke in his "Kunst im Hause"(Vienna, 1873, p. 119), esteems the bed, particularly the canopied bed, as an "art work." He recognizes on it the feet, formed as animals or spherical, t then the top and sides, which were covered by carvings, further the accenting of the corners by posts, caryatids, fluted
577 and twisted columns, that were intended to support the canopy, which was of velvet, silk ornamented by fringes and Spanish

gold lace. To Italian models are also to be referred the French and German state beds; with the aid of Italian workmen originated also the arrangements of Fugger in Augsburg.

More abundant in his statements is Henry Havard in Vol. III of his "Dictionnaire de l'Ameublement."(Paris. N.D.). He shows on p. 400 the canopy bed of Catherine de Medici from the Chateau of Chaumont, entirely covered with tapestry and with a h high carved rear side, and from the 16 th century the "Bed with Columns."of Pierre de Gondi, now exhibited in Museum Cluny at Paris, and reproduced from Havard's drawing in Fig. 510. A so-called "bed with curtains"from the same time is given in Fig. 511.

In Pescocostanzo (in the Abruzzi) in House Riccardelli is found a canopied bed with twisted columns (represented in Italia Artistica, No. 64, together with other Barocco furniture worthy of consideration from House Colecchi).

For lack of remaining examples, reference must be made to illustrations for completing the material. In S. Annunziata at Florence the bed at the Birth of Maria appears as the simplest couch; others show beds with raised heads, again others having a high wooden rear wall with volute-like terminations. (Palace Vescovile in Verona). A splendidly furnished canopied bed is represented in relief on a panel of the middle bronze doors of the Cathedral in Pisa, from the time of Giovanni da Bologna. (See the illustration in the Section on Church B Buildings -- Bronze Doors). On the whole the canopied beds entirely covered by hangings owe their origin in idea, but n not in form, to the Gothic middle ages.

341. Majolicas.

Of high artistic individuality, both as objects of luxury as well as of utility, are the majolica vases, which were made in great numbers and are to be found in all museums of the known world -- the variously colored and glazed pottery of t the 16 th century, that were chiefly made at Castle Durante in the Duchy of Urbino. They represent a special Italian school of pottery, and form the transition from relief to painted decoration. The colors thereon employed are those of the Robbias; yellow, green, blue and violet on a light or white
578 ground, where grotesque ornament continues more artistically valuable than figures and the representation of landscapes.

In Figs. 512 and 513 are given three such pieces from Museum Bargello in Florence, which are to be designated equally as beautiful and characteristic.

342. Plates, Dishes and Table Pottery.

But this process did not supply merely mugs, pots and bowls; likewise plates and dishes and all possible useful articles were produced by it for the table and kitchen. A beautiful collection of such objects is to be found in Loreto (examples in Figs. 514 to 517 inclusive) in Palace della Santa Casa, in the Museum at Pesaro, and in nearly all collections in the c civilized world. Important new imitations aee those of Canta-galli and Ginori in Florence.

The simply magnificent table pottery of Cardinal Alessandro Farnese, which the Museum Nazionale in Naples preserves-- blue with painted gold ornaments -- should not be omitted here. Burckhardt's judgment of this may be recalled:-- "But these majolicas are no manufacture but hand work, from a time of t the most extended appreciation of forms; in each dish lives a spark of personal labor and endeavor." Herein lies the mystery, why these articles have remained so lovely and precious.

Serlio (Book I) in his book on Architecture devotes several pages to the beautiful outlines of vases,and explains their derivation -- an indication of the weight laid upon these objects by the contemporary architects.

He places before himself the problem of correctly drawing a slender and a swelled vase. In the two first the solutions, that are reproduced in Fig. 389, Sect. XIV, he takes for each
579 kind of vase two circles, and divides the qsadrants into four
580 equal parts. From the points of division on the perimeter of the great circle, he draws radii and connects these points by horizontal lines. From the intersections of the radii of the inner circle, he drops perpendiculars to the horizontals mentioned; the intersections of these with the verticals then g give points of the curve of the vase, then being joined together by a full line, the vase curve itself (Fig. 389).

343. Art Glass, Mirrors and Mirror Frames, Chandeliers.

Glass in the forms of mirrors, frames, chandeliers, drinking vessels for daily use and as show pieces, artistic plates, pitchers, pouring vessels and the like are chiefly products of the highly developed Venetian art industry. (See the Murano

chandeliers from Palace Vendramin in Venice, as well as glass objects in the Bargello, and such in nearly all museums in t the world). These may serve to recall those art products known to all, which are so finely designed, so appropriately m made formerly, sometimes of white and sometimes of colored glass, or of both kinds combined, and that are still made to this hour with varying taste. (Figs. 518 to 521). Colored g glazing of windows in secular buildings is to be mentioned in Library Laurenziana at Florence.

Also here agáin the Medici appear as purchasers or owners. A mirror of Maria de Medici, now in the gallery of Apollo in the Louvre, illustrated by Havard in a colored print, exhibits an enclosure of the beveled glass in the form of a shrine,
581 which is made of gold, enamel, semi-precious stones, cameos, etc. Venetian mirrors; hand, portable and suspended mirrors in frames of wood and ivory, of wrought silver or of crystal glass -- thus glass set in glass -- are wonderful objects of the minor arts. Then what abundance and variety in the form of standing glasses and flasks (Fig. 521). How poor, beggarly poor have we become in contrast!

582 344. Articles of Luxury.

Articles of luxury, vessels and ornamental objects of the 16 th century almost all bear the signature of Benvenuto Cellini (1500-1572). Magnificent pieces of these are found in the treasury of Palace Pitti in Florence, the best in the Cabinet of Gems of the Uffizi there, very many in the collections of all larger cities of Italy, and how much is still in t the private possession of Italian collectors and great men!,

The motive as a rule was a precious mineral (agate, jasper, lapis lazuli and the like), which existed in some fanciful form, was transformed into a vessel, and for that purpose was furnished with a foot, handle and cover. In the gold settings plain surfaces and skilfully wrought surfaces alternate with enameled and are beset with precious stones or panels. (See the small vessels from the K. K. Museum in Vienna and the beautiful flasks of lapis lazuli in the Cabinet of Gems at Florence, illustrated with the church equipment of the Section on Church Buildings).

Masks, nymphs, dragons, heads of animals, dolphins and serpents are most happily drawn into the circle of ornamentation,

wherein with a fine sense in the combination of colors, the right arrangement is always found.

Works entirely made of the noble metals, frequently set in enamels and precious stones, in the form of cups and beakers, plates of wrought silver and gilded, not all of which are proved to be Italian work, are also found in Florence in the places mentioned. Some od the pieces show Augsburg and Nuremberg marks. On account of the connection, compare also the m magnificent publication of the "Imperial Chapel" in Munich by F. X. Zettler. Munich. 1870.

584 A special branch of these art objects is formed by the pieces cut from rock crystal with polished ornament.

The so-called "Farnese casket" of Joannes di Bernardi in N Naples exhibits the most splendid polished crystal, whose effect is somewhat injured by the overrich metal framework.(Fig. 523).

345. Works in Ivory, etc.

Another branch is again composed of the wosks in ivory, sometimes as handles of implements for eating, sometimes as beakers and tankards, whose external surfaces are animated by skilfully wrought figure compositions.

Silver implements for eating from the 15 th century occur in the Fabbrica del Duomo at Sinea, whose treatment is based on a sound basis like that of the ivories, which early went out of use,and are so-called dirt-catchers by their strong relief; they further are inconvenient in the hand. The former exhibit smooth handles with surface decoration in niello in simple designs on dark blue steel ground; only the end of the handle has a knob in relief, which is gilded like the end of the blade (Fig. 523). Here regard is paid to use, and every unsuitable ornamental dorm is avoided -- an example for imitation now, even by later peoples.

346. Tapestries, Embroideries, etc.

Costly hangings and embroideries, statuettes, busts of marble and of metal, as well as artistically wrought gems, family paintings and pictures in costly and richly carved, color-
585 ed and gilded frames (Palaces Pitti and Uffizi in Florence) composed the ornaments of the rooms, and enhanced by their splendor the artistic harmony in these living rooms, in which also the articles inherited from ancestors retained their ri-

rights, according to the principle, that good works from all periods always harmonize with other good things, also even w without the prized unity of style, that under some circumstances may become monotonous. Of gilded and perforated picture frames may be mentioned as an example from the time before 1 1600 one such from Museum Mosca in Pesaro, which Fig. 524 reproduces from No. 42 of Italia Artistica.

Whatever is preserved in the Italian museums exhibits overrich productions of the art industries of that time. But these must indeed be but the least part of what was made, if one takes into consideration the contents of foreign museums, and
586 particularly if there be added what is still preserved by the wealthy and the great. Provincial exhibitions at times, to which private persons and societies contribute, afford matter for thought, of which I recall only that held in Siena in 1904. I do not include wath the Church still conceals of treasures of art industries. I will only recall Monza, a place for many. The Sienese exhibttion mentioned presented many mass tapestries, works of the very highest rank, which require costly materials, taste and skill in execution; also in more modest materials appear the charming laces of linen threads.(Figs. 526, 527). For example, just what the exhibition in Siena s showed was simply grand. A minor and a greater art with such possibilities in general existed almost entirely there. And
587 today with us? But there was a time, that of Dürer and Holbein, when German art industries stood at the same height, which will never be forgotten!

"The applied art rejoices
The new era by simplicity;
Yet who, an oat-bin, press,
A chest, a garden-bench
Et cetera will design
In lattice or square style--
Be the object ever so small---
Must at least be a Professor."

588

B. PUBLIC BUILDINGS.

Section XX. Palaces (of ruling families), Theatres, Universities, Museums and Libraries, Administration Buildings, Banks, Commercial Buildings and Warehouses, City Halls, Hospitals and Asylums for Poor, Prisons, Granaries, Exchanges, M Market Halls, Merchants' Houses, Banks and Loggias, State Workshops, Docks, Magazines, Arsenals, Hotels and Baths, Public Fountains, Monuments, City Gates and Bridges, Cemeteries.

a. Palaces.

347. Palaces of Princes.

Leon Battista Alberti commences his Book V (Chap. 1) on Architecture with the title of On the Castles and Residences, that have to serve for the King and foe the Lords of different ranks," and thus here also will be made a beginning with the palaces of the king. Alberti is of opinion, that a ruler has to protect his city,not only against external enemies, b but also from unquiet elements within it, and accordingly fortify and arrange his residence. A hereditary monarch can place this in the midst of the city and give it the form of a palace; a new one would do better to arrange it as a fortress; yet the building does not need to appear like a prison.

The Dukes of Milan surrounded their Castle by a wall and m moat, enclosing it by walls and towers, the Visconti in Pavia protected their own by four massive angle towers; the Dukes of Este separated their Castle from the streets in Ferrara by broad moats; others, like the Duke of Urbino utilized the location of the site to his advantage, which was naturally accessible with difficulty, and only in the latest time of the Renaissance were omitted from the designs of the seats of princes all measures for protection.

348. Palace Ducal in Urbino.

It was a Count of Montrefelto, who in 1213 was invested with Urbino by Emperor Frederick II, and who built his residence as monarch there, not without the opposition of the citizens of Urbino, on a high hill dominating the city and the country, at first indeed with small area and irregular in the style of the castles of that time. With Frederick of Urbino, who succeeded to the government in 1437, arose the splendor of the house, and the highly cultured and energetic prince, who is designated as a particular friend to architecture, was no lon-

longer satisfied with the home of his fathers, and sought an
architect, who could embody his views in his sense, and that
he believed he had also found in the person of Luciano from
589 Laurana in Dalmatia. What was erected, occurred with the ut-
ilization of the old structure, and therefore does not appear
as a united whole. To be able to give the building, Palace
Ducal in Urbino, a greater extent, the site must first be ar-
tificially created by filling and massive substructures, so
that its masses might find the necessary support. The irreg-
ularity of the site and the mode of enlargement mentioned ma-
de possible the great cellars and storerooms, the placing of
kitchens, bathrooms, etc., directly beneath the ground story,
for the rooms of which the same level of the floors was requ-
ired in accordance with the custom of the time. The ground
story received the administration rooms and also the great li-
brary of the Duke, while the upper or noble story contained
the special living apartments of the ruler. They were groupp-
ed around a square court; a straight main stairway connected
the two stories,and also some service stairs besides (partly
winding stairs) made possible communications within the resi-
590 dence. The mediaeval winding stairs, according to the innova-
tions of the Renaissance, must here yield to the straight st-
airs with landings.(Fig. 528; ground plan).

In the upper story was developed the highest splendor of d
decoration and of the degree of comfort, that was required in
that time. With this the exterior remained simple; it appear-
ed as ordinary brickwork with reddish-brown bricks, built sol-
idly and well, with vaulted rooms and passages. A battlement
cornice formerly crowned the building, as on Villa Gareggi n
near Florence, on Palace Venezia in Rome, and on various Bolo-
gnese palasters. Pilasters, columns, belts and cornices were
made of travertine, and also the surfaces of the facades were
to be faced with tramertine slabs, whiln also occured in part.
(Fig. 246).

Architecturally most important is the court with its beaut-
iful porticos in the ground story and the enclosed corridors
in the story above, where simple rectangular windows with caps
and intermediate pilasters animate the wall surfaces (Fig. 529;
section). Dignified in proportions and most beautifully det-
ailed, the court remains a pearl of the Renaissance in Italy,

which master Luciano perhaps designed and executed himself, also possibly only his successor, Baccio Pintelli. (Vasari ascribes the structure to Francesco di Giorgio da Siena; also see what is said on p. 305).

In the interior is the surprising, colossal and simply treated hall 112 ft. long, 48 ft. wide and 45 ft. high, as well as the monumental bay window in the court already mentioned.

One of the small facades is flanked by two slender round t towers with pointed conical roofs; a loggia between them extends through three stories,and creates a secure standing place and outlook for the occupants of the palace over the rich landscape, and at the same time is an effective motive in the new architecture. The windows at the right and left are rectangular, enclosed by pilasters and entablatures like the antique (architrave, frieze and cornice). The classical element consciously appears here and beautifully in the details. (Figs. 245, 246). This occurs in a greater degree on the massive facades, which are toward the interior of the city, and indeed on those remaining unfinished, which adjoin it at a r right angle, where lies the main entrance to the palace. Yet the attempt is also made to cover the surfaces of the walls with stone slabs, and to construct the windows in the forms of the new style, showing in the opening the antique rectangular shape. The details are designed and executed in perfect forms. Fig. 246 gives a view of the corresponding facade as found at the place (see also Arnold's work), penetrated with the antique fragrance, while the elongated street facade has not entirely freed itself from Florentine elements. There t the Strozzi window again greets us, even coquetting with Gothic additions (Fig. 246).

349. Palace in Gubbio.

Worthily beside it stands the second Palace of Federigo in Gubbio, whose court is scarcely inferior to that in Urbino, (see the capitals of its columns, window details, its plan a and section in Figs. 530 and 531, and its description and measured drawings in Laspeyres. Zeitschrift für Bauwesen. Berlin. 1881).

350. Palace near Caprarola.

A third palace on a mountain height with the use of the new arrangements for fortifications is Palace Farnese built by

Jacopo Barozzi da Vignola (1547-1559) on a slope of Monte Ci-
591 592 mino in the immediate vicinity of the small mountain city of Caprarola, about two hours'drive from Viterbo. Its internal rooms were splendidly adorned by Taddeo and Federigo Zuccari, and of this the artists themselves say;-- "Nowhere in Italy has any prince apartments better adorned by paintings with m more beauty than these."--"They say it themselves and it must be true;" but all do not believe it, and find in the Vatican loggias the still purer charm of a chaste art. The chief parts are the quarters of the prelates, richly adorned by "stuccos and paintings," the principal story and the royal stairway.

On a plateau, that has a form similar to that of Tyrins, r rises the pentagonal palace, surrounded by water moats and c connected by three bridges with the surrounding gardens. Stepped structures at the front end of the site lead up to it. Between clumps of trees extends a broad avenue from the pala-
593 ce and the garden to a casino, before and behind which are a arranged in a clumsy way ornamental gardens with fountains a and cascades. The system of Roman villas for arranging the gardens and buildings about a great longitudinal axis reappears here (Fig. 532).

594 Characteristic and beautiful remains the circular court enclosed by a colonnade and with six separate large winding stairways and the main stairway, the royal stairs for which the Bramante stairway in the Belvedere of the Vatican served as a model, that also reappears in Palaces Barberini and Borghese. The flights of steps do not lack a certain grandeur; the facades also have a grand, though somewhat dry effect, but have good details. More interesting than the exterior is the execution of the architecture of the court; below are rusticated piers, above being coupled piers with projecting Ionic half columns, and over these being a continuous terrace with balustrade with the recessed story. The effect of the court architecture thereby becomes admirable. (Fig. 484 in Section XVII; Courts). 203

Also see Maccari, E. Il Palazzo di Caprarola. Berlin.(N.D.) and Percier and Fontaine, where the beautifully simple casino is also represented.

A general view of the external appearance of the majestic palace is given by Fig. 533. As technically worth knowing, it

may be stated, that all architectural members, such as belts, window enclosures, parapets, the main portal, the stairs, etc., are constructed of gray tufa, only the upper main cornice being composed of yellow limestone. The steps are likewise of tufa, but have risers of light limestone. Their treads are mostly constructed of red bricks laid in herring bone fashion. The floors of the halls are covered by variegated clay tiles, whose design has often become effaced by use. The external wall surfaces of the stories are plastered and alternately c colored yellow and red, the retaining walls of the bastions are built of bricks and were coated with stucco. Likewise t
595 the wall surfaces of the small casino were plastered, while the window enclosures, cornice, columns and arches are made of tufa.

Of good effect are the little indications of life in these rooms; the few bright flowers, the fruits shown, and the modern furniture for use. There are people in the house! The upper story is rented to an American lady, who enjoys the fresh summer here; the building itself is retained by the Farnese family, whose office gives gratis a permit for visiting it and going through the magnificent and well preserved gardens and parks. (Via Arenula, Rome). Box hedges, cypresses, m maple, sycamore and chestnut trees, holly with red berries, wild grapevines, the variety of flowers, fruit trees, fruit trees and shrubs, flowing water, the noble outlook over the country and Soracte in a grand way composes a beautiful and completed view, such as not easily found again on God's broad earth.

The pentagonal plan of the bastions is also found again in the Castle of S. Angeli in Rome, indeed under somewhat changed conditions. The nucleus structure is here a mountain palace of the highest ecclesiastical prince of Christendom, and
596 there is a a tomb of a pagan emperor, both arranged to be occupied, and furnished with modern fortifications, with bastions and moat.

351. Palace in Carpi.

Another "prince's residence of the Renaissance," the Palace of Prince Alberto Pio in Carpi, like that in Urbino is no unified creation. A square court is surrounded by columnar porticos, and is enclosed by deeper rooms, only exhibiting vaul-

vaulted halls in the ground story, forming the centre of the plan. The two stories above this are subdivided by pilasters, animated by rectangular windows, and together present an effective architectural appearance. The external upper story w with its small pilasters, between which small semicircular niches alternate with windows, is terminated by a high cornice, giving a rich crown to the street facade. [204]

Note 204. An exhaustive publication of this building, especially on the historical side, is given in Semper, H., F.O. Schultze and W. Barth. Carpi, a prince's seat of the Renaissance. Dresden. 1882.

352. Some other Palaces.

Palace Reale in Milan was built in 1772 in place of Palace di Corte, the Palace of the Visconti and the Sforza. Further details relating to this building have already been mentioned. Plans and historical statements are to be found in the work mentioned below. [205]

Note 205. Cassina, F. Le Fabbriche piu cospicue di Milano. Milan. 1840-1844.

577 Palace Reale in Naples likewise was previously mentioned. Begun in 1600 by Domenico Fontana, it was again restored in the years 1837-1841 after a fire. The facade is 554 ft. long and on the three stories is animated by three orders, Doric, Ionic and Composite. The great state stairway was built in 1651; still notable is the addition of a small theatre, a characteristic of the palaces of the late Barocco and Rococo.

Palace Capo di Monte was begun under Charles III, but only was completed in 1839, and therefore can scarcely come into consideration.

353. Palaces in Turin.

In Turin is to be mentioned Palace Madama erected by William of Montserrat in the 13 th century, which in the 15 th century was restored under Ludovico d'Acaja; in 1718 it received after Juvara's plans the magnificent double stairway and the facade of marble columns on the west side.

Palace Reale in Turin was begun in 1646, was constructed as a simple brick structure, and contains the royal apartments with the royal armory (Figs. 535, 536; throne hall and stair hall). The furniture is of extraordinary magnificence and beauty.

By Guarini was built there in 1680 Palace Carignano with i its remarkable brick facade, whose rear facade was executed only in 1871 by the architects Bollati and Ferri, but in a n new manner opposed to that of Guarini. (See C. Isaia, Torino, Guida del Viaggiatore). Interesting is the oval vestibule with the double stairs extending around this.

In the plan the front line of Guarini's street facade consists of projecting and recessed straight parts, which again are connected by curved ones, thus producing an animated treatment even in the elevation of the facade. (See Fig. 265, a plan according to the book of Guarini in the year 1686). One may express just objections to the strongly animated masses of the building, but life pulsates in it, and therefore it m must not be wholly scorned. The master produced a school in his art style, and he at least understood how to win high patrons and great commissions. We may comfort ourselves with a saying of Weber's (Democritos):-- "Every age of man has its particular follies." If these were follies, they still had m methods, and the facade will ever remain a piece of ostentation of the late Barocco (Fig. 266), and will stand higher in art value than the starved Barocco again adopted by us at the same time. (Also see p. 334 of the text).

354. Palace del Valentino.

In the so-called Palace del Valentino, erected about the m middle of the 17 th century at the command of Maria Christina of France, widow of Duke Vittorio Amadeo I in the style of t the contemporary French chateaus, appears to us one of the best architectural creations of Turin. The building exhibits on the city side the beautiful court of honor (Fig. 537) with a more united facade toward the river (Po), (Fig. 538), both having steep French roofs and distinguished by four angle pavilions with hip roofs extending upward like towers. The original grand design of a pupil of Salomon Debrosse remains unfinished; in the last decades the principal facade next the Po received some additions. Magnificent halls still exist in the second story. The Palace served for holding court and f family festivals of the House of Savoy, but since 1860 a technical school has occupied it.

355. Palace of Stupinigi near Turin.

Six and one-fourth miles from Turin lies the Palace of Stu-

Stupinigi, built by King Charles Emanuel III after the plans
of Juvara, but changed externally by Count Alfieri, whose mid-
dle building is crowned by a mansard domed roof, on the top
599 of which stands a stag in cast bronze (Fig. 539). The inter-
600 ior has magnificent halls adorned by frescos and pictures by
Vanloo, Valreieni, Wehrlin, Cignaroli, etc. Juvara also fur-
nished the plans for the plundered and unfinished Palace at
Rivoli near Turin (1712).

Specifically Italian types in the spirit of the palaces of
upper and middle Italy of the early and late Renaissance time
are scarcely to be disignated in Piedmont, but on the contra-
ry those of the high Barocco and those built under French in-
fluence flourished more. France again returns something of
what it had received from Italy, and gladly adds native elem-
ents thereto, as on the Palace del Valentino mentioned.

Also the Palace in Stupinigi is not free from them. Allied
relations of the courts brought Italian artists to France and
French to Italy, but the latter were in very limited number,
or accompanied those from the Netherlands. On the other hand
and perhaps in too great numbers, they found acceptance in G
Germany, where soon no court or little court was judged to be
complete in its organization if without a French architect.

In Emilia the Farnese first commenced with the extensive g
group of buildings of Palace Pilota in Parma, but without br-
inging it to completion. The great court exhibits the form
of the expressed lean Barocco in its entirely honest "simpli-
city." Its theatre built by Aleotti (1618-1628), pupil of Pal-
601 ladio, and its great hall della galleria, its hall di Lettura,
and its corridor della Biblioteca (see Italia Illustrata, No.
19) brought well deserved fame [206] by their rich contents.

Note 206. See the system of the facade of the court of Pal-
ace della Pilota (Fig. 293), then the illustrations of the
theatre and of the library in Parma in this volume.

356. Palace in Modena.

In Modena under Francis I (1634) Palace Ducal was erected
by the Roman Avonzini, which exhibits one of the mightiest f
602 facades of this style epoch (Fig. 540). Of imposing effect
is the arcade court with two stories lying above each other
and a crowning terrace.

357. Castle in Ferrara.

357. Castle in Ferrara.

Of the Palace of the Este in Ferrara may justly be said:--"Their castle is unequaled as a picturesque and imposing view, but cannot pass for a palace,"-- and just on that account is indeed one of the most interesting castle structures in all Italy. The castle is built as a so-called "water castle" of
663 red bricks, to which lead drawbridges and arched bridges through detached gateway structures. Massive square towers with galleries in high and plain arched cornices, such as were in use in Florence and Siena, with additions like belvederes, f flank the castle structure (Fig. 541).

One enters the interior from the street through three entrances. The main entrance leads through a three-aisled guard-room, covered by continuous tunnel vaults resting on columns; from this over a narrow drawbridge into a vaulted passage, a and through it into the great plain court. The interior now no longer contains what the exterior promises; it serves for administrative purposes and has little worthy of note artistically. Only the hall del consiglio contains frescos by Dosso Dossi, as well as the adjoining hall di Napoli, that represent pugilistic contests. Better than these are the friezes of children in the succeeding hall dell'Aurora, a room that may be designated as the most beautiful in the building. On the exterior the continuous balconies constructed of white marble slabs, are so far noteworthy, as their supports formed of three slabs scarcely 7.9 ins. thick, placed above each other and with ends shaped like volutes, that support thin floor slabs consisting of two pieces in depth.

Likewise the covered balcony extending the entire width of the bridge head is yet to be mentioned, that rests on similarly narrow supports; its superstructure consists of wooden posts, lintels and purlins, whose intervals are closed by windows. A bulbous metal roof of shape similar to that on the bay window of Palace Roverella, covers the entire extent of the balcony.

358. Palace of the Gonzaga at Mantua.

The Palace of the Duke Gonzaga, now Corte Reale in Mantua, built for Frederic II Gonzaga in 1302, changed and painted by Giulio Romano, contains an abundance of interesting and magnificently decorated rooms, particularly the dining room, hall

604 dello Zodiaco, whose ceiling is painted with stars on a dark blue ground with the use of gold, the hall degli Specchi, some rooms with labyrinthine drawings on the ceiling in blue a and gold, and also to be mentioned is the small cabinet of Isabella d'Este with its decorated blue and gold ceiling--which are to be regarded with their costly works in wood, stucco a and marble as permanent models for architects, painters and sculptors. (Fig. 542; hall dei Marchesi).

Here is to be added Palace Castello del Corte, now serving as archives, with its precious mural and ceiling paintings of the great Mantegna, a small example of which shows their character and firm drawing.in Fig. 543, representing a spandrel of the vault painted in gray on gray with a medallion portrait of a Roman emperor, enclosed by a garland and bands, adjacent to which are other spandrels with mythological scenes, while at the apex of the ceiling is arranged a so-called illusion painting with girls and cupids leaning on a balustrade. A wealth of magnificence is found here, and is offered for s study of the artist possessed of refined invention and with feeling for the truly beautiful; here is found the best that the spirit of man has ever created in the domain of the decoration of monumental buildings.

359. Palace Doge in Venice.

The Palace Doge in Venice on the Rivoalto island was likewise erected by the Doge Partecipazzo (809) as a castle with moat, drawbridge and three towers connected by walls, with t the residence of the Doge in the eastern wing facing the narrow canal. First in 976 and again in 1105 it was greatly injured by fire, but it was enlarged in 1173, 1301, 1309 and 1 1340, when the towers were removed and the moat was filled. Under Doge Foscari in 1424 the palace was again enlarged, and the beautiful portal della Carta was begun (1439), a charming example of the transition from late Gothic to the Renaissance.

The architectsof the South wing must have been Pietro Bareggio and Filippo Calendario; those of the western were Giovanni Buon and his sons Pantaleone and Bartolomeo.

The magnificent court was begun in 1485 A. Rizzo, was continued in the 16 th century by P. Lombardo and Antonio Scarpagnino, yet was completed by them only in part. The small facade in the northeast angle adjoining the Church S. Marco is

ascribed to Guglielmo Bergomasco (1520), while the completed facade of the east wing was by Rizzo.

In the year 1577 two wings were nearly destroyed by fire, when 15 architects were asked for their opinions and agreed for a rebuilding, with the exception of the palace architect Antonio de Ponte, who promised to undertake the restoration without rebuilding the ground walls, and who accordingly executed it. A final structural restoration was made for the facades covered by red and white marble tiles, and for some piers in the court in the years 1873-1889, with considerable r renewal of the ornamental decoration.

The giants' staircase, that extends open through the court, and is adorned by two colossal statues of Neptune and Mars, (both by Sansovino in 1483), was built by Antonio Rizzo from Verona as a state entrance to the second story, as well as a also the magnificent facade and the adjacent graceful projection.

The facade with the clock was executed by Bartolomeo Monopola (1589-1609). The stairway in the interior, the Scala d'Oro,
605 606 with its splendid stucco tunnel vault leads to the story with the great state apartments and halls for sittings, the hall of the Senate, the hall of the Great Council, etc. (Fig.544)[207]

Note 207. Also see the official guide through Palace Doge in Venice by Antonio della Rovere with the ground plan of the arrangement.

Thus here is no building from a single imagination, no unified work, gradually originated were the different parts under special conditions, and they were continued in the varying taste of the time. Careless whether the newly erected harmonized with the old, one was joined to another as necessity required, this residence of the president and of the legislative bodies of the republic of Venice, over which the storms of time swept for more than a thousand years (809-1901), yet still unshaken, a monument of architecture, whose stones tell its history, where chapter continues chapter, even if each c page be written in different letters, yet does not have the expression of absurdities collected together. From small beginnings to the highest development of power and magnificence none of the actual modes of expression disturb the grand impression of imagination, and none of others, since they were

created by men of equally high development, even if at different times, and indeed reconciled the idea of beauty of one architectural style with that of another; for only unskilful m works of one may not harmonize with the good works of another. Each period gives its best and lays it down with the degree of self-consciousness proper for a time of high abilities.

This seat of the ruler of a republic with its historical r recollections surpasses all, that Italy has elsewhere created in all times, serving the same or an allied purposes. No powerful monarch has ever understood how to infuse into his building stones the degree of intellectual life, which the nobles of Venice understood how to give theirs in such a high degree.

360. Palace in Caserta.

On the contrary, the greatest Palace of the King of the Two Sicilies appears dry to us, though erected by an architect of spirit and taste; the Palace in Caserta near Capua. Master Luigi Vanvitelli designed the plan; on Jan. 20, 1752, was laid the corner stone, and on June 19 of the same year were the f foundations commenced.

It is the "Potsdam or Versailles of Naples," and with its forecourts, ornamental garden, protected leafy alleys, wide avenues bordered by trees and grand cascades and basins beset by statues, that extend an hour's walk to a hill, it is a combination of the Roman villa and the French chateau in a widely extended level country.

In elevation, not in the plan, is recalled the mediaeval c castle with four towers at the angles of the plan, while the middle is accented by a domed structure without a complete m motive, and not treated with sufficient importance. The middle projection is adorned by the antique pediment, that after Palladio came into use again. (Figs. 545, 546).

The living and state apartments of the palace lie around a rectangular court, which is again subdivided into four small courts by two transverse wings crossing each other, and which are connected together by the domed structure over the crossing, and by corridors in the middle wings. The angles and t the middles are emphasized by slight projections; the living rooms are all in direct connection with each other, but no l longer after the old custom are accessible from the exterior by airy corridors, since to them are added small anterooms or

side rooms in the width of the old corridors. Between these are inserted frequent small winding stairs connecting the different rooms in the various stories together. Likewise poorly lighted and ventilated middle passages according to the t taste of the time were not neglected. In spite of all academic regularity for these reasons, a definite clarity in plan is still missed in certain places.

Grand are the front vestibules (Fig. 547) arranged at the entrances on the main and garden fronts, from which one looks diagonally toward the small courts. Three-aisled arched corridors lead from thence to the great stairway vestibule, that
609 from its centre permits views of the four courts, and from w which one passes to the state stairway, which extends only to the principal story. The convenient stairs with landings and in three flights, so far as refers to plan, dimensions and decoration of the walls by marble, belongs with the grandest of its kind, and according to the structural material, we have before us the most costly stairway in the world.

For lesser passage, beside the great main entrances are arranged subordinate passages at the middles of the side wings, which correspond to the passages of the wings in the courts. In the direction of the principal axes result very rich views through the entire building.

On continuous axes the greatest weight is laid in the principal story, as shown by the dotted lines on the plan. All doorways lie on the same axis, so that from a point of the corner room one has a view through all rooms of the entire m main and side fronts. A really grand view, with the festal use and lighting of all rooms together may have afforded a f fairy-like impression, and would not lack effect even by daylight. The view in the direction of the middle axis through the vestibule and the six middle halls is likewise imposing in effect. In a dignified way and removed from the external facades, the palace chapel lies before the great vaulted vestibule of the stairway, directly accessible from the state stairway.[208]

610 Note 208. From a photograph.

611 Of special interest is the addition of a great theatre, the theatre domestico di corte, whose ceiling and 40 boxes (besides the royal) were supported by 12 Corinthian columns in the

audience room. [209]

Note 209. See Vanvitelli, Dichiorazione dei desegni del Reale Palazzo di Caserta. Naples. 1756. Also the plans taken f from thence in Figs. 548, 549, as well as the sections in Figs. 571, 572.

The general view of the palace (Fig. 545) shows four higher angle projections and an octagonal dome over the crossing of the two principal axes, i.e., over the great central main vestibule, thereby producing an effective outline of the building. The upper stories of the angle projections and that of the central dome dominating the whole were indeed planned, b but never executed. Unfortunately! They would have lessened the monotony of the exterior of the building. The form of t the dome was well conceived, its twofold purpose was well weighed, besides dominating the masses it should serve as a great covered outlook terrace for the occupants of the palace. Likewise was afforded the possibility of controlling thence the structural condition of the palace and of its roofs, as well as making possible a free view in all directions over t the rich landscape, the hills and the distant sea. Vanvitelli understood how to satisfy these requirements; he desired no church dome, but rather an outlook pavilion in form and purpose. (Fig. 546).

381. Palace Villa Reale in Milan.

A palace belonging to the end of the 18 th century -- the Villa Reale, formerly Palace Belgioso -- in Milan, the work of the Vienna architect Leopoldo Pollack and his employer Lodovico Barbiano-Belgioso, of the year 1790, may still find m mention here. It exhibits the classical French influence of that time and a very beautiful, academically treated plan. The architect employed the court of honor enclosed next the street, the polygonal vestibule of Caserta, and the arrangement of the middle rooms of Palace Chieracato at Vicenza (Figs. 548, 279), but in a skilful manner.

382. The Rocca near Pesaro.

Jacob Burckhardt in his Geschichte der Italienische Renaissance (Chap. XII, edit. of 1878), treated of fortifications of mountain castles, called attention to the Rocca or Roccnetta, and stated that some princes or entire dynasties were o often accustomed to dwell for a longer or shorter time in for-

fortified castles, and provided for themselves in the interior according to their rank, without sacrificing security of person or of residence. "The castles with high walls and battlements" disappeared, in place of lofty fortress towers Federigo of Urbino introduced low ones, which could be injured less by artillery during a siege. The battlements of the middle ages were omitted (1412-1447), in their places appearing heavy cornices with consoles and rustication of the ashlar w work of the bastions. But then it should not be forgotten, that "nearly all architects named were at the same time fortress architects, as such often recommending themselves more strongly to great men, than by their art in a narrower sense". G. Vaccaj, for example, states in "Italia Artistica," that t the Rocca near Pesaro was built after the drawings of Brunelleschi. It is certain, that L. da Laurana would have preferred to complete the Rocca near Pesaro, than the Palace in Urbino. Of the Rocchetta and the Rocca of that time we have r representations by the intarsias in the choir of the Church of S. Agostino in Pesaro (see Vaccaj, p. 63), and by the beau-
612 tiful medal of Enzola -- the medal colla Rocca -- which is r represented in Fig. 550.

A heavy work remains to us in the Mantual Castle near Civita Castellano, built by Pope Alexander VI (1494-1500), afterwards enlarged by Julius II and Leo X, and whose court with piers was adorned with paintings by the Zucchari (Fig. 551). The portal near the drawbridge bears the inscription:-- "Julius P. P. II" (who occupied the papal throne 1503-1513), and
613 rusticated surfaces of all decorative members, that recall a similar treatment of the surfaces of the ashlars of Porta Nigra in Treves. Shields on the exterior of the wall bear the arms of Roveren In the plan appears here indeed for the first time the pentagonal instead of the rectangular form (Fig. 552). A massive and not high tower dominates the design (see No. 25); at four angles of the walls rise acute-angled projections like bastions, while the fifth is treated as a semicircular tower. A deep moat encloses the building on two sides, which is in good condition, and last served as a prison for the feared Gasparone and his band. 210

Note 210. J. Friedlander in Jahrb. d. K Preuss. Kunstsomm. II, 1881, p. 17 , No. 7, describes the back of the medal:--

Inexpugnabile Castellum Constantium Pisaurense Soluti Publicae. 147 . "The Castle of Pesaro, on whose battlements warriors are visible, with the sea in the background." "Below is Io. Fr. (incised)," artist's name, i.e., Johannes Franciscus Parmensis, whose family name was Enzola.

The front side already appears on another medal of Enzola of the year 1474, and has the inscription:-- "Constantius Sfortia De Aragonia Di Alexan Sfor Fil, i.e. son of Alexander Sforza, Pisaurens princeps Aetatis An. 27.

The diameter is 80 mm. It is represented on Pl. 41, as well as also in Tresor de Numismatique et de Glyptique, Medailles coulees et ciselees in Italie (I), Paris, 1834. Pl. VII, No. 3, and in Italia Artistica, No. 42. Pesaro. p. 67.

On the building of a mountain castle (fortessa de la rocca) also see L. B. Alberti. Book V.

364. Castle in Civitavecchia.

In the year 1508 Bramante began another papal so-called harbor castle in Civitavecchia, that he must have built to the upper part of the middle tower, and which Michelangelo then completed. The plan reverts to the rectangle in its form, w which is characterized by 4 round towers at the angles and a polygonal tower at the middle of one longer side (Fig. 553).

The editors of the "Cicerone" request, that no blame be placed on the honored Bramante therefor, since he has adhered to "a round bastion for diverging fire, instead of turning to t the recently invented bastion." Albrecht Dürer also did this in his fortifications of the city of Nuremberg, without being criticised by anyone (1527), except that in Nuremberg tower bastions occur instead of round towers, which made possible a better handling of the artillery.

Sangallo yet followed in Civita Castellano only the ancient Italian and the modern Italian fortification of cities with bastions and middle works (bastions and ravelins), while Bramante adhered to the ancient castrum (camp). For the Dutch a and French and all later military architecture Sangallo and A. Dürer remained the inspiring masters. The great Vauban (1633-1707) 100 years later was only the intelligent pupil of those mentioned.

614 615

365. Castles at Braccione and Rimini.

Entirely on the mediaeval basis continued the architects of

the castles of Braccione and of Rimini, which are models of strong seats of noblemen in mediaeval taste and sense. That built by master Orsini in 1460 came into the possession of Odescalchi, and was restored in 1894-1899. It contains good Renaissance furniture and a mediaeval beam ceiling.(Fig. 554).

The Rocca of Rimini was built (1417-1468) by Sigismondo Malatesta, whose arms are cut over the entrance.(Now partly destroyed and perverted from its original purpose, it serves as a prison).

616 An interesting reconstruction is given in Fig. 555 from the work of Guglielmotti, Storia della Marina pontifica.(Vol. X). It agrees tolerably with what the (skilful engraver of the mediaeval epoch) seal engraver Matteo Pastri has represented on the medal, the "view of the fortress of Rimini erected in the fifteenth century for Sigismondo Malatesta, the victorious lord of that city" (1446). The inscription on the medal is:-- Castellum Sismundum Arimense 1446 (Castle of Sigismund of Rimini). A general plan of this fortress in its present condition (1820 ?) was made by the architect Stegani in Rimini, and like the medal on Pl. 53, No. 11, is represented in Storia dell'Arte, shown by their monuments of G. B. L. G. Seroux d'Agincourt. Prato. 1829.

366. Castle of the Visconti-Sforza in Milan.

The view (Fig. 556) from Sebastian Münster's Cosmographia (1550) gives one of the most extensive dynastic castles, with whose erection are connected the best names, like Filarete, Leonardo and Bramante, and the owners were also representatives of the most important rulers, the Visconti and Sforza, who had raised themselves to be dukes of Milan.

617 Of the last Visconti (1412-1447) and his Castle in Milan, Burckhardt states in his "Kultur der Renaissance," (p. 30), that it was surrounded by splendid gardens, shaded walks and exercise grounds, but that all means for the safety of his person were provided. His son-in-law and heir, the fortunate mercenary captain Francesco Sforza (1450-1466), entirely unequaled in bodily and mental gifts, never conquered in the field, was the man, who from a low condition raised himself to rule a realm, and became his successor. He was succeeded by Galeazzo Maria, and then as the last ruler by Lodovico il Moro (till 1499), maintaining the importance of the family in

the same sense. They were patrons of the arts and sciences and accordingly organized them in their possessions. In what manner this occurred in the most prominent secular architecture, in what way was the determination of the different parts of the castle, we are shown by the well known view by Münster, though it is not trustworthy in all its parts.

Partly destroyed and finally utilized as Austrian barracks, this monument of the fate and end of an illegitimate ruler w was again skilfully rebuilt by the architect Luca Beltrami, and transferred to museum purposes -- the aim of our present restoration of monuments. Further in Part No. 25. I. Milano Italia Artistica. p. 77 et seq.

367. Castle at Vigevano.

In the vicinity of Milan should yet be mentioned the great Gothic Castle of Sforza in Vigevano, on which Bramante was a also employed. (Also see:-- Le rarita di Vigevano of Girolamo Bissiguandi. Vigevano. 1840). The beautiful Renaissance loggia and also indeed the upper part of the tower (see illustration in Section XXI:-- Public Squares, and Fig. 557) passes
618 for his work. Now used for military purposes, a part of the building is designated as Rocca Vecchia. According to Gaudenzio Merula, the paintings here must have been executed by Leonardo.

368. Castle of S. Angelo in Rome.

As an important but architecturally somewhat singular example still remains to be mentioned the Castle of S. Angelo. New life blooms on the ruins! From the tomb of a Roman emperor is made a modern citadel with princely arrangement of the interior, that is connected with the residence palace of a h high ecclesiastical prince. The structure first became important by its siege by the constable of France, Charles de Bourbon, and his tragic end by Benvenuto Cellini. Here Pope Clement VII withstood in 1527 the dangers of the siege of the c castle. The character of a strong fortress with only a squa-
619 re enclosure (cinta) was lost in the times of Alexander VI ((1492-1503) to Paul IV (1555-1559). Pope Marcellus reigned but a few months, but first had the purpose to strengthen the castle of S. Angelo and to make it a strong place, when he e entrusted the corresponding work to Camillo Orsini, who improvised a bastioned front with broad moat in the form of a pen-

pentagon, enclosing thereby the square walls of Alexander VI. He followed the idea of Sangallo, who had already at Civita used it at Civita Castellana. An inundation of the Tiber (1557) destroyed the work of Orsini, which consisted of fascines, earth and unburnt bricks.

620 A rare engraving giving information concerning the plans of Orsini was made known by Lafreri. It is reproduced in the interesting little work of Borgatti Mariano, "Castel Sant'Angelo in Roma, 1890", as Fig. 32 a, Pl. 18 a, p. 132 of text. The fortifications were certainly executed, since Pius IV ((1561) feared incidentally an attack by Turks. As engineer was engaged Francesco Laparelli da Cortona. The Pope of the Medici family mentioned (1559-1565) had a medal struck as a memorial of these works, which is represented in Fig. 558. It bears on the margin the word "Instaurata" (restoration). The explanation of this states:-- "In memory of the great work of the pentagonal fortification, Pius IV had a medal struck." A more correct representation than the medal is given by the bastioned general plan according to Borgatti by Fig. 560 after Fig. 41 a of the original, with the two kinds of enclosures, square and pentagonal. To the time from 1557 and 1561 dates the new and improved arrangement of the fortress.

What the different popes and their architects may have done in the course of time may be examined at the place, but may also be learned from Figs. 559 and 561. The stuccoed and painted halls and anterooms, the splendid bathroom of the Pope, the loggia, the vaulted corridors, courts and stairways indeed show, how the monarchs arranged for themselves life in the fortress.

369. Stables.

Both for the palaces as well as for castles there are not lacking the stables, either as separate buildings or in direct connection with the residences. They were not erected by the architects as simple utility structures; on them was like-
621 wise impressed the stamp of great spaciousness and of a certain luxury, and the first masters did not disdain the solution of such a dry problem, as Bramante has shown by his stable of Palace Pamfili in Rome. [212]

Note 212. See Letorouilly. p. 195 of the text.

At least in middle and lower Italy, climatic conditions per-

permitted a better space development in the interior, as shown by Fig. 562, where the three-aisled plan is expressed with a broad and somewhat higher middle aisle with narrower side aisles, with the use of a high side light. The vaults here rest on reddish-gray antique granite columns with well profiled bases and capitals of the Doric order and happy proportions of the same. Between each two columns are arranged the stalls.

b. Theatre Buildings.

370. Historical and General.

The theatres of the Greeks and Romans were desolated,and d disappeared under the uproar of the weapons of the northern peoples striving for new places to live, and of the people dwelling on the blessed borders of the Mediterranean, farther advanced in culture. Youthful Christendom put a complete end to them. Into contemporary forgetfulness these arrangements might well fall, but could not be removed from the succeeding and aspiring culture. The intellectual life of the peoples lent them their ancient rights, even if at first in a changed form, to later find again what the antique had attained and required. The stage of the ancients reappeared among the Christian peoples of the middle ages and of the Renaissance. The joys and sorrows of a divine or terrestrial hero, the representation of good and evil, whose reward and punishment, c considerations and acts of the highest customary conceptions and laws of mankind, the worth and destiny of existence remain the bases of the representations of the theatre at all times and among all peoples, which were convinced of their culture problem, from the ancient Egyptians to our own time.

371. Church Theatres.

The clergy, who preached a miserable earthly existence and an unknown better future, at the same time was conscious of the great impression, which the dramatic art had always exerted on the masses, were the first to take possession of the stage again, but then set aside the gods, heroes, poets and philosophers of the ancient world, and set in their places t the events in the origin of the new faith and its principles in the most effective way. For example, what could impress the believing Christian auditor more, than a production of t the Birth of Christ in the stable of Bethlehem, with the Adoration by the three holy kings, his Entrance into Jerusalem

and the Tragedy on Golgotha? All represented in the quiet r rooms of a monastery or in the mystically harmonized interior of a high vaulted aisle or choir of a church! The costly mangers in the Munich National Museum indeed give an idea thereof. Here the new Christians first took the lead on English soil. The sacred dramas there date back into the 12 th cent-
622 ury (Goffrado died 1146), while the "religious spectacles" first occurred in Italy about the 13 th century.(1243). 213.

Note 213. See A. d'Ancona, Origine del Teatro Italiano, L Libri III. Vols. 1 & 2. Second edition. Turin. 1891.

1. The Church fathers and the Latin Theatre.
2. Sacred and liturgical adoptions of the new dramas.
3. The liturgical drama.
4. Beginnings of sacred drama in France and other parts of Europe and in Italy. (p. 87).

372. Palace Theatres.

"Only late commenced the permanent theatres, and these for long did not take an external art form." Classical pieces were indeed represented in the golden age of the Renaissance in the palaces of the great. Thus for example, Lorenzo, a nephew of Leo X, had a piece of Plautus played, but for this indeed the scenic equipment may have played a slight part. But already in 1472 Cardinal Gonzaga caused a theatre to be arranged in his Palace at Mantua, and Ercole I gave theatrical representations in 1486 in his Palace at Ferrara.

373. Stages for the Mysteries.

The stages for the mysteries and their permeation by jesting was dropped in Italy as inartistic earlier than in northern countries. From the monasteries and churches they came to t the marketplaces. They consisted of a wooden stage framework in three stories, the middle one for the representation of e earthly life, the upper for paradise , and the lower being a assigned to hell. These were given up, when the exhibitions were transferred to enclosed rooms, and this again occurred earlier in the North than in the South. France and England contest the priority of this procedure, while for example in Spain at the time of Cervantes (1547-1616), the stage of the poet and wandering actor Lope de Rueda consisted of four benches forming a square and covered by planks. To it also belonged a wooden curtain, behind which stood the musicians to

accompany the romances without the guitar. [214]

Note 214. See the interesting publication:-- Streit, A. Untersuchungen über das Theaterbauwerk bei den classischen und modernen Völkern. p. 58. Vienna. 1903.

374. Enclosed Theatres.

Public theatres, accessible to the general public were still unknown in Italy in the 15 th century. The first permanent theatre was built in Paris in 1584, followed by the Swan and the Globe Southwark Theatres in London after 1596, whose erection Shakspeare assisted by a money contribution. According to Streit, both London theatres were enclosed theatres with galleries, supported by vertical wooden posts set over each other. Behind these rose the seats in the form of an amphitheatre. The tendency of this kind of theatre is to create an interior on the least area possible, that may contain the greatest possible number of auditors. On this Streit states:-- "For a theatre the resulting greatest economy in regard to i its ground area was not the aim, nor even a measure requiring this, and therefore the endeavor to arrange on the least area the greatest number of auditoss in successive galleries was entirely false." I might also assent to this, but however true in itself, the Italian Renaissance has nowhere been able to convince itself thereof, as shown by the numerous and great experiments in palace and public theatres, for example in Caserta and Milan. Only the first attempts in Parma and Vicenza tend to the antique, in the later triumphs the system of successive galleries.

375. Public or Popular Theatres.

The church theatre was succeeded by the palace theatre, and to this first the public. A semicircular theatre constructed of wood was once erected by A. Palladio for a carnival representation in Venice.

623 376. Principles of Theatre Construction of the Renaissance in Italy.

On what basis rose and proceeded now the theatre construction of the modern period, and what was taken from the antique by it? The requirements remained the same:-- the orchestra on the level floor, the elevated stage, the auditorium arranged as an inclined amphitheatre, the towers and adjoining necessary rooms.

The roofed theatre of the ancients (Pompeii, Aosta) (Fig. 568 with a comparison of antique models of auditoriums) was preferred, and therewith the plays at night with corresponding lighting by lamps or candles, the orchestra after the Greek,model (Fig. 563) in an elongated horseshoe or exact semicircular form, or such with adjacent wings perpendicular to t this (see circus Maximus, Fig. 563) were retained. The plan of the rows of seats follows the form of the orchestra, but also their segmental arrangement was not rejected, such as shown in the Greek odeions (Fig. 563). The external architecture was equally unimportant as for the Greek theatre, but for different reasons. The Roman model was only employed later.

Manfred Semper in this "Handbuch", Part II, Vol. 6, Heft 5, p. 43, states:-- "The masters of the Renaissance had before them for the form of their theatres the relatively well preserved ruins of the antique Roman theatres and took these as models, but nothing of their theatres has remained." However much more than we see still of the antique theatres, the Renaissance masters also could not have taken them for a model, and properly only the roofed theatre of the ancients would be taken into consideration. But how the treatment of the c ceiling and roof of this appeared, they also had no starting points for this. What was to be given here could only be new, thought out for itself. But we would not forget here, that what we have from them was limited to the palace theatres, w which do not appear as external architecture. They were hall structures exhibiting the same architectural treatment as the
624 other apartments of the prince. Only of J. Sansovino is it stated, that he erected in Venice (1580) two beautiful permanent theatres at great expense, one round and one oval, but which were only intended for carnival comedies and held a great multitude of men. (See Burckhardt, J. Geschichte der Renaissance in Italien. Section 192. Theatre Building).

Also a permanent theatre of semicircular form for the city of Venice was built by A. Palladio, again intended for carnival comedies,and constructed of wood, with facades in antique forms. His still existing principal work, externally entirely formless, but so much the more spirited and interesting in the interior, is and remains the Theatre Olimpico in Vicenza.

377. Theatre Olimpico in Vicenza.

It exhibits in the interior the auditorium in the form of a half ellipse and rising like an amphitheatre, comparable to half a Roman amphitheatre, and like that terminating with a portico at the upper row of seats. The antique theatre and also the amphitheatre, in accordance with what has been said, were models for this portion of the modern theatre, that enclosed a free arena or orchestra, followed by the rectangular stage of small depth with a subdivided permanent architectural background, like that of the Greco-Roman theatre in Asia Minor. (Theatre in Aspendos).

A middle entrance of medium size with a smaller one on each side and others at the ends of the stage afforded views in t the streets of a city, flanked by greatly varied houses; all
625 constructed of wood and carved, diminishing in perspective a and ending in a painted background, the whole presents an elegant, but a beautiful and rich representation of a permanent
626 background. (Figs. 564, 565). The scene is a "symmetrical s stately building with five portals, through which one sees t the rising alleys with varied and unsymmetrical separate buildings."

If the auditorium, orchestra and scene are borrowed from t the ancients, then is the idea of presenting in the scene a view of a city original and novel, and is to be regarded as an extension of what the ancients only gave in simplified form. "Nowhere is there deception in our modern sense, but a festal magnificence of view."

378. Theatre Farnese in Parma.

Giambattista Aleotti, the gifted pupil of Palladio, designed 34 years later (1618) a theatre for Parma, that E. Bentivoglio erected. It indicates an advance and an innovation in theatre construction. The auditorium is of rectangular form, in which is inserted a semicircular portico extending through two stories and continued in straight lines next the proscenium (Fig. 566 from Streit's plan of the "Theatre Farnese at Parma"). Thereby the auditorium receives the form of an open horseshoe. The rows of seats enclose a great parquet, at one end of which opens the stage, here not as permanent architecture, but rather formed as a richly enclosed triumphal gateway or as a monumental frame adorned by figures and columns,

through which one sees the acts played on the main stage, that is extended by two rear stages -- the ground idea for most modern theatres. (Fig. 567, from a drawing of J. M. Olberich in Streit).

Indeed in veneration for his master, Aleotti gave to his a arcades of his auditorium the form of the porticos of the Basilica in Vicenza; perhaps he also knew not how to offer anything original.

628 The high porticos were formerly treated in polychrome, like the main facade in white and gold, as the remains of color on the architectural parts still show. The wooden statues were painted white, the triglyphs in the friezes were likewise white, the metopes red, the columns reddish marbled; the equestrian statues in the vicinity of the proscenium were constructed of a wooden skeleton covered by stucco.

An engraving exhibited in the theatre shows us the proscenium with curtain lowered and the date of 1618. There is preserved a “fragment of the ceiling of the Farnese Theatre painted by Bionello Spadi (18 th century)”, consisting of thin w wood with a painted boy. In the adjacent Museum are two “Murano lustres” from the end of the 17 th century, of white glass with red and green flowers, that formerly decorated the said theatre.

The visible framework of the roof now yawning over the interior of the theatre was not the enclosing ceiling above, a according to these finds, or not even a stetched awning -- a richly painted wooden ceiling must have formed the proper covering. The architectural elevation, the colored architecture thereof gleaming with gold, in the splendor of a rich lighting with candles, a thousand-fold reflected by the facets of the glass prisms on the lustres, the room itself filled by a distinguished society of ladies and gentlemen, shining in velvet and silk, gold and silver, must have had a dazzling e effect. Once arousing the wonder of the entire distinguished world, this theatre is now in lamentable dilapidation.

This architectural work indeed deserved a better fate, and for historical and artistic reasons would certainly have been worth preserving, but also here is the lot of the beautiful on the earth! Political disturbances, changes in the position of the ruler, the ceasing of the purpose and the loss of

interest resulting therefrom, besides the lack of funds, may have been the causes of the present condition of the work.-- Not everything can be retained by those born later, it would otherwise appear strange in the world, and only the living h have rights!

379. Theatre of Serlio.

Serlio (1584) makes in his Book II of his work on Architec - ure [215] particular statements with drawings concerning the t
629 theatres of his time. (Of the stages and theatres as customary in our time). He first treats of their longitudinal section, when he gives the steeply rising amphitheatre (auditorium), then a parquet and before this a raised stage with inclined floor and a background (Fig. 568). He desires the stage floor to be at the height of the eye, first a part being horizontal, then gently rising as far as the rear wall, before which is placed the painted background, and he gives figured proportions for this.

Note 215. Pls. 47 - 52 of the Venetian edition.

The narrow surface c of the raised stage is designated by Serlio as "place of the scene"; the slightly raised surface F is intended for the seats of the distinguished persons. The first row of steps belongs to the great ladies, and the next to the less prominent men. Then follows a concentric walk, as in the antique theatre; then come the other rows for persons still less eminent, beyond being a second concentric walk with other seats for persons of lesser prominence, and finally the surface K for the ordinary paying people. In the "Treatise on the Scene" he describes the background, and he expresses himself thus:-- (See original text, p. 629).

630 We see that all is cared for, that can delight the eye.

Serlio distinguishes between three kinds of scenery:-- the comic, the tragic, and the satiric scenes. The first requires a representation of private buildings suited to petty busines men, advocates, retailers and similar persons, but where the house of the ruffian, an inn and a temple must not be lacking.

On the contrary, the tragic scene prefers palaces and royal castles, public buildings, but the satiric has mountains, hills, rocks, some peasants' cabins, flowers and trees.

His last Section treats of the artificial stars of the scene,

where he goes into receipes and says, for example, what must be taken for producing a sapphire blue sky, how colors are m made transparent, how beams of light may be cast with a new and polished shaving dish, how one makes a "beautiful and fragrant light" with burning camphor, how thunder and lightning are produced, when a stone ball is rolled and varnish powder (colophony ?) is blown through a light. But he demands one good thing, a pure skylight for lighting the stage.

380. Theatre of Buontalenti.

Buontalenti introduced in his Theatre behind the Uffizi in Florence a further innovation, when he gave an inclination to the parquet, as Serlio did to his stage floor; he also furnished it with a stage arrangement, which astonished all Europe and was studied. 216.

Note 216. In his "Geschichte der Borokstyles in Italien" (Stuttgart, 1887), Gurlitt refers to a full description of t the decoration of this theatre by Baldinucci (p. 47) -- further to Furttenbach, S. Architectura Civilis. p. 22, 23. -- M More on theatres is stated by Gurlitt, p. 491-500.

The arrangement of the auditoriums approximates that of the modern theatre, when around an oval parquet are arranged partitions radially to this.

631 381. Theatres of the Bibienas.

With the appearance of Bibiena, theatre construction and i its scenic equipment attained the highest artistic perfection; They were called to the countries of all rulers, and worked in Dresden, Munich, Bayreuth (1747); Antonio Galli Bibiena, who died in Milan (1774), was engaged in Siena, Pistoja and Bologna; Ferdinando Bibiena built in Mantua (1735) the Theatre completed by A. Galluzzi, in which the interior was entirely constructed of wood. A beautiful work on "Architettura Prospettiva" was published by Giuseppe Galli Bibiena as theatrical engineer and architect (1740), in which in the magnificent compositions he subscribes himself as Architectus theatralis primarius (inv. et del). (First theatrical Architect).

382. Theatre Tordione in Rome; Theatre San Carlo in Naples.

The Palace Theatre in Parma (1618) was followed by Theatre Tordione in Rome, built in 1675 by Carlo Fontana, with six g galleries vertically over each other, and then came the Theatre San Carlo in Naples, for which Angelo Carasale furnished

the plans. The interior of this largest theatre of Italy burned in 1816, but it was restored to its original condition.

383. Scala in Milan:- Theatre Fenice in Venice.

This was followed in time by the Theatre alla Scala in Milan (1774), then in 1788-1792 by Theatre la Fenice in Venice, (Figs. 569, 570), and in 1826-1828 by the beautiful Theatre Carlo Felice in Genoa. Other large cities like Siena, Florence, Turin, etc., followed the example.

384. Palace Theatre in Caserta.

Of the well preserved palace theatre -- the private theatre in the Palace at Caserta built by Vanvitelli (1752-1756),-- Figs. 571 and 572 represent the arrangement in plan and in t the auditorium. Vanvitelli there returned again to the horizontal parquette of the hall, but he adopted the raised and inclined stage with traps, side scenes and ceiling drops. A b proscenium with doubled Corinthian columns encloses the stage opening, adjoining which is a form like a colonnade, between which are arranged three tiers of separate boxes above each other. An uppermost tier of boxes above the columns supporting a broken entablature terminates at top the auditorium. Starting from the semicircular openings of these, ribs extend between compartments to the centre of the vaulted ceiling, d dividing this in a suitable manner. (Fig. 572).

The amphitheatre is here dropped and gives place to boxes lying above each other, whereby all spectators are placed as nearly as possible equidistant from the stage, but also the inconvenience results, that the spectators in the upper galleries or boxes can only enjoy the actors and scenery in birdseye perspective, and have a doubtful enjoyment of what is offered. Then has theatre architecture made any substantial advance from Bibiena and Vanvitelli in 150 years? Scarcely, I
632 633 believe! We confuse the arrangements of the antique theatre with the box construction of the Roman theatre -- that is indeed all -- and if thunder and lightning can be more faithfully imitated and better arrangements for artificial lighting can be provided, together with a higher degree of splendor in the house, then still remains merely the perfection of the machinery as an acquisition.

As already shown, the masters of the 16 th century still adhered to the form of the antique theatre and amphitheatre, a

and therefore placed relatively few spectators on a comparatively large area, but under the best conditions for seeing a and hearing; those of the 18 th century created the innovation of galleries built vertically over each other with the development of a permanent and richly decorated ceiling of the auditorium. They placed many spectators on a small area, made possible good hearing and seeing in the house, with which men must take the tastelessness mentioned.

385. Theatre as a Building devoted to the Art.

The basal form of the auditorium returns to that of the Greek theatre to a certain degree, if we recall that there the outlines of the rows of seats are extended beyond the semicircle of the orchestra. Then in a higher degree is this the c case in the theatres of the later Renaissance. The ground a area becomes horseshoe-shaped. In the Theatre Fenice the outline is egg-shaped. The partitions of the boxes are arranged to correspond to this, and this line is extended on the stage. (Figs. 563, 570). Plan of the Greek stage building and of T Theatre Fenice.

The theatre must be a "building devoted to the art," a principle also recognized in its full extent by the later masters, and which was also expressed by F. Milizia (1728-1798) in his work, principii di Architettura Civile. He blames the complete lack of expression of the external architecture on nearly all theatres of his time, and refers to the exterior of the Theatre Marcellus in Rome in its "regular and noble beauty," in which the purpose of the building is directly made known. One must with shame speak of the facades of our theatres; even if it be not inscribed thereon; that is a theatre, who could mistake it?

386. Theatre Facade of Ferrarese.

In the year 1771 Vicenzo Ferrarese appeared with the publication of a theatre facade, which had great literary results, but at first found no imitation. Auditorium and stage are c comprised in a circular structure and covered by a low dome. (Fig. 573 from Streit. p. 141).

The stage consisted of a low podium, that had as a rear wall a part of the common enclosure. This was animated on the exterior in its upper half by an engaged colonnade of a colossal order with rectangular windows and niches, while the lower

half was surrounded by a colonnade with horizontal entablature, covered by a terrace.

337. Theatre Facade of San Georgi.

That was a decided change in comparison with the elsewhere usual type of facade with projections like a temple, colonnades, flights of steps and driveways, without an individual e expression. The suggestion did not remain without results, in spite of the objection at first. In the year 1821 appeared Pietro San Giorgi with a theatre design intended for Via del Corso in Rome, in which the auditorium and stage were also made recognizable externally. The former is placed in semicircular form before the stage building and with its conical domed
634 roof extends beneath the pediment of the stage building. Ar-
635 ched passages are arranged after the antique model to surround in two stories the semicircular nucleus structure, a terrace roof covers this, from which rise a low addition with small rectangular windows.

338. The modern Theatre.

What San Giorgi presented had a happier fate, although not at first in Italy, but rather in Germany and France. Inspired by the same ideas, whether with or without knowledge of the plan of San Giorgi, Moller in 1829-1832 created his Theatre in Munich, then Gottfried Semper his Theatres in Dresden and Vienna, Garnier his Grand Opera in Paris, and Basile his Theatre Massimo in Palermo.

To the Italian architects belongs the fame of having given the earliest stimulus to modern theatre architecture, where the purposes of the different parts of the structure are made visible externally, and combined into an animated and more picturesque group. But they gave tone also to the classical theatre facades about the close of the 19 th century. (Fig. 574).

339. Future.

But also the expressed external and internal round form has disappeared for the auditorium. It has again become rectangular as for the Theatrum tectum (roofed theatre) in Aosta and for the antique odeions, the semicircle gave place to the segment and this again to the rectangular ending. The circle b began from the front. The combination of the amphitheatre a
636 and enclosed theatre with free or supported galleries in the

auditorium is the advantage for them today; and the highest gain for the architecture of theatre construction in general is the unlimited height of the stage building, compelled by the development and perfecting of its mechanical and scenic arrangements. Domination over the other parts of the building is therefore assigned to it in a manner visible afar. The stage house stands in its architectural mass and form higher than the building for the auditorium, for which the external form seems to have not yet been found. Generally the mechanicians control in the matter. Art must give place to the stronger and thus more suitable influence.

The corridors and abundant flights of steps of the antique theatre are transformed into richly decorated foyers, state and secondary stairways, that already occurred in Theatre Farnese in Parma (1618), and have to be considered in fit proportion to the number of visitors, which is a merit of the architects of the Italian Renaissance. The transformations of t the antique day theatre into a night theatre was the impelling force for a new treatment also of these subordinate rooms and of the arrangements for passage. Likewise the ruder climate in the countries on this side of the Alps, the pampering of their inhabitants, the gathering of hundreds of men into enclosed and but artificially lighted rooms, the addition of n halls for supplying food and drinks, without which nothing g goes on, and in regard to which the question may be put, whether the "cultured" public lingers for a few evening hours in the temple of the muses for the buffet or the play, and great clothes rooms, heating, ventilation and lighting arrangements, and an increased number of toilets is required.

These changed requirements must be satisfied today by the modern theatre architect, and to have brought them to a high state, together with the acquisitions for the stage, is the merit of our time, to which the public with its requirements
637 and other needs gave the impulse. This is the ancient truth again, that innovations in the domain of architecture are only produced by necessity.

390. Sacred Theatre.

In addition to the secular theatre, reference is yet to be made to the so-called sacred theatre, which men were accustomed to arrange in churches. The famous painter and Jesuit fa-

632 Father, Andrea Pozzo, in his book, Der Mahler und Baumeister Perspektiv, Part I,II, Augsburg, 1706, informs us of one such erected by him in Rome in 1695, which is represented in plan and by a perspective view in Figs. 575, 576. A peculiar flight of steps leads upward and in the enclosure for the play to be represented. Another of the year 1685 represented the Marriage at Cana in Galilee, which was arranged on the occasion of the exposure of the sacrament in the Jesuit church at Rome. Pozzo himself praised its magnificent architecture, that not only by day, but also particularly by night and candle light was uncommonly pleasing. To the rear surfaces of the cloth s side scenes were attached candles, which lighted the front s surfaces of the succeeding scenes.

Of the elevation he remarks, that this "represents the complete theatre with its lights and shades." It consisted of different parts, partly combined and partly separated, hence lighted by visible and concealed lights, which then on their part deceived the eye; when they were again placed in accordance with the art of perspective and as the extreme lines of of the work required here and there; so that indeed one would have sworn, that these side scenes were round, yet they were still entirely flat and even.

How proud he was of this undertaking, with what complacency he accepted the deception produced, is shown by his statement; "I well remember still, that I saw some persons, who wished to ascend those steps, before they perceived the deception, until they touched them with their hands!" Zeuxis and Apelles a are orphan children in comparison!, What not always could be attained on wooden framework with a covering of sacking, Pozzo allowed on the plastering of smooth stone vaults with his eminent knowledge and skill, even in monumental architecture, which will always continue to amaze.

What wonderful works in the decoration of church theatres were produced by a pious child-like faith, and still are, is also attested by the flower mosaics at the church festivals in Gennazano. What an account of taste and ability for such a transitory equivalent!

But A. Pozzo also busied himself with the arrangements of the secular stage. He gives rules for placing the side scenes (sliding pieces, etc.), (Fig. 577, from Pozzo), on a stage,

and he requires for this the length and width of the theatre to be assumed as known, the line O A representing the length of the theatre and M N its width, that a line is to be drawn
639 from N to O, which must touch the front edge of the sliding side scenes, but not pass outside them; then he does not set them parallel to the line M N but somewhat inclined, yet parallel to each other as far as the background, which must be
640 set parallel to M N. If then A O be made equal to A F, then the point F gives the distance of the spectator, if he is to see a correct representation.

391. Theatre for Passion Plays.

To be mentioned as representations in grand style in church theatre architecture are the passion plays continuing for several days, and their arrangements. They are at this time performances in daytime under the open sky, on a front and middle stage with an auditorium containing many men. (Oberammergau). On the middle stage with its scenic equipment are performed the chief acts, where it may be remembered, "that in the drama the stage is properly a subordinate affair, the acts a and fates of men being the principal matter."

How otherwise today! How primitive appear the statements of Serlio and the rules of Pozzo for the arrangement of the stage. This might pass for the Shakspeare stages, but this view satisfies no longer. We strive for a permeation, a certain entirety of the poem in music or prose with the scenic equipment, we desire possibilities and realities, and not pasteboard surroundings for men of flesh and blood. And here have we attained higher things. For example, what would be the closing of Strauss' Ariadne without this principle?

392. The Nature Theatre.

In the gardens of the great appeared in all countries in t the 18 th century a further species of theatre arrangements, the so-called nature theatre with free play beneath the open sky in the daytime and without movable equipment. In the midst of other arrangements of the garden, it consisted of a m moderately elevated area, to which led a flight of steps, and arranged with side scenes after the manner of the enclosed t theatre, excepting that these consisted of high green hedges, with angles before which were placed vases, statues and groups of sandstone or marble. In the midst of the stage rises

generally also a small and open temple. The background likewise consists of well pruned hedges with passages and niches often in three series behind each other. The auditorium is constructed with stepped seats rising in amphitheatre form, the parquet and seats only covered by turf, as well as the p podium of the stage. (See plan of the Dresden Nature Theatre and the design of Dumont in Part IV, Vol. 6, Heft 5 of this "Handbuch", and from these, Figs. 578, 579). All for the gay life of a lightly living and unconstrained high society:-- T The king amuses himself, but not the people!

Besides the mentioned new Amphitheatre in Milan, there are yet on Italian soil, and dating from the Barocco period, arrangements for festival plays and races in Villa Borghese at Rome, the so-called Hippodrome (arranged after the manner of the ancients for races and riding exercises according to Percier and Fontaine), and the Amphitheatre in the Boboli gardens at Florence, intended for the festival games of the court, also to be mentioned in a great place surrounded by rows of seats and oak hedges at the rear of Palace Pitti.

Famous for its decoration was also the Theatre in Urbino b built by Genga, in which was performed the first Italian comedy, the Calandra of Cardinal Bibbiena, friend of Leo X.

At the beginning of the last century (1808) and also in Italy, men proceeded to erect an open amphitheatre in the Amphitheatre of Milan, executed in monumental form by Luigi Canonica, which contains 30,000 spectators.

c. Universities, Museums and Libraries.

398. Universities.

The oldest great institutions for instruction must indeed have been the Museion at Alexandria (280 B.C.), the School of Philosophers in Athens, the High Schools in Lyons, Nimes, Constantinople, Cordova and Syracuse. On the Italian mainland are found the first universities according to modern language, yet not equipped with all faculties,(being mostly limited to the sciences of law and of medicine), of the 11 th century in Ravenna, Bologna and Salerno. In Naples one such was founded by Frederic II in 1224, which was transformed in 1780 and was located in the Jesuit College founded in 1605. In the 12 th century the Paris University first received a permanent corporative constitution, which became the starting point and model

for all later examples in the West.

Others were founded in Padua, Pisa, Ferrara (again established in 1404), Genoa, etc., that formerly already received a great attendance of foreign students. To these were added t the different Jesuit colleges in Rome, Milan, Genoa and Naples, worthily so far as related to grandeur of arrangement; b but in magnitude and beauty in architectural respects, these excelled all previously created. All come from monastery and cathedral schools and are products of the late middle ages or of the early Renaissance. Accordingly the buildings of the new institutions approximated the monasteries, where the rooms for instruction were grouped around a quietly located enclosed court, an arrangement firmly adhered to for reasons of suitability. Both free commons as well as groups of lecture halls were best so arranged. Here in the end were especially the Jesuit colleges, where the courts became true school courts, where high porticos more clearly indicated the purpose of the rooms lying behind them, than the low corridors of the monasteries, that rather corresponded to the cells of the monks.

To the leading idea (to which also the Arab architects firmly adhered, as for the School of the Learned in Cairo), to g group according to the antique principle the rooms for instruction and study around a great court, surrounded by airy porticos, and to give the building the character of a palace, w was expressed in the most beautiful way. Science should dwell in dignity, sun itself in light rooms, not in "accursed and deep holes in masonry," lost in smoke and mould, surrounded by heaped skeletons of animals and bones of the dead."

The architects of the Renaissance understood how to impart to these courts a grand stamp with refined beauty of details and decoration. (Also see what is said in Section XVII, and the decision of Alberti there expressed on architraves and arches for porticos). A permanent indication should also be placed there by the students, who formerly had received an a academic degree at these high schools, by sketching on the the walls their names and arms, among which are also found many Germans! Frequent also are the "countrymen's societies," that desired to make themselves known to future races -- the beginners of the later and still existing corporations!

394. University Building in Padua.

394. University Building in Padua.

The cloisters of Brunellesco are recalled by the court of the University of Pisa, dating from the 15 th century. Of perfected beauty is the court of the University of Padua ((Fig. 472) built by Sansovino in 1555, with horizontal entablatures resting on columns and vaulted porticos, extending through two stories. So wonderfully beautiful is also the general effect of the columnar court of this University, so certainly the conception may also be ascribed to Sansovino, just as little can I make the master responsible for the details, especially in the upper story; the ornaments are too r rude there.

The ancient lecture halls are small, the seats therein rising steeply in a half octagon, and arranged in an amphitheatre with 8 to 9 steps. The instructor stood at the wall with windows before the pier between two great window openings; t the drawing or computing board lay horizontally before him on the table -- and thus it is the same custom there today! The room of Galileo is more than simple; it now contains the honorary gifts of foreign students (also of German), which were presented at the jubilee of the university. The great hall is a large and light room with modern seats; the walls are in a yellow pattern tone, from which the brightly painted arms of student corporations stand out effectively, just as on the walls of the halls and corridors of the Archiginnasio in Bologna.

Fig. 581 gives a representation of the facade of the university at Padua from an old engraving (Facciata della Universita -- engraving from 17 th century in Italia Illustrata, No. 65), and Fig. 581 is an illustration of the silver staves staves of the beadle (mazze argentee dei Bidelli dell'Universita). They recall to me the similar articles from ancient times at the University of Heidelberg. But these are preserved and not gone to "flute" like the flutes of Frederic the Great, as a Berlin palace custodian once explained to me. "Ora perduti" (lost hours) stands beneath the representations of the s staves at Padua, that are designated as sceptres by us.

395. Pavia.

Pavia obtained a University by G. Visconti (1361) and a corresponding new building (1490) from Ludovico el Moro, which was enlarged (1770) by Pier Marini. Now court is added to c

court, whose porticos are adorned by artistically valuable m monuments of famous professors and prominent students, and serve for the exhibition of antiquities. A great stairway executed in Empire style merits particular consideration, as well as also the library with its contents.

396. Bologna.

On account of its charming court design the Archiginnasio at Bologna deserves especial regard. It was built as the seat of the University by Terrabilia (1562), but after its transfer (1803) into Palace Celiesi (Palace Poggi) with the court by Triachini, was arranged for the communal library and c civic museum. Artistically of value is the anatomical theatre, formerly used for lectures, arranged by A. Leonti (Figs. 582, 583). The paneling of the walls and the coffered ceiling are entirely of richly carved wood stained dark.

397. Turin.

After the plans of the Genoese architect Ricca was built in 1713 the beautiful late Renaissance court of the University in Turin. (See Fig. 205 in Section XI).

398. Parma.

As a Jesuit college was erected the University in Parma under Ottavio Farnese in the 16 th century by Galeazzo Alessi.

399. The Brera in Milan.

Likewise as Jesuit colleges were built in the 17 th century the present University in Genoa (as already stated) and the Brera in Milan with its incomparably beautiful and grand courts and stairways. (See Section XVII; Court Facades).

400. Collegio Romano and Sapienza in Rome.

As the earliest example of such must be the Collegio Romano designed by Ammanati, and as the greatest the Sapienza at Rome erected with its majestic court.[217] This comprises two e elongated wings with continuous arched porticos, which at one end are connected by a wall with an inner portico, on which opens from each wing a straight flight of stairs with landing in two branches, while at the other end is inserted a domed church with an exedra before it. These four structures enclose the simple and grand court, for which Michelangelo furnished the plans to Pope Leo X. After the death of Leo the bu-

644 ilding stopped, but was again resumed under Gregory XIII (157.), and was only completed about 100 years later (1660) under Al-

Alexander VII, who gave the building the inscription; "Initium Sapientiae Timor Domini" (Beginning of wisdom is fear of the Lord).

Note 217. Both are published in Letarouilly, P. Edifices de Rome moderne. Vol. 1. Pl. 170, p. 212; Vol. 2, Pl. 173, p. 373. Paris. 1860.

Here are taught gratis law, theology, medicine, archaeology, oriental languages and other branches of knowledge. A school of the fine arts was arranged in the halls on the ground flo-
645 or; in the rooms of the fourth story was organized a "school of engineering" by Pius VII and Leo XII, which as it commenced at the beginning of the government of Pius VII (1800-1823) was able to hold its centenary festival at the beginning of this century!

646 The halls throughout have a depth of 34.5 ft. with a clear height of 19.0 ft. in the ground story, are of various lengths (up to 61.0 ft.), and have side light from the streets, u usually two windows to 35.5 ft. width of room. The corridors measure 11.5 ft. in width and 19.0 ft. in height; thus nowhere are the dimensions restricted, each school hall being made spacious and airy. At the ground level and with rows of seats built in form of an amphitheatre are arranged the halls f for perspective and for anatomy, for the latter may have served as a model indeed the interesting hall for anatomical lectures in Bologna, panelled in wood, at least in the mode of a arrangement.

401. Museums.

Museums for statues, paintings and products of the minor a arts and the art industries were not erected in the first period of the Renaissance as separate buildings for the exhibition of the objects mentioned.

The great men of Italy were indeed collectors intelligent in art, who placed particular value on acquiring antiquities; but they exhibited these in their spacious and magnificent l living and social rooms. They entered into intimate relations with the art works; they loved them and would not lack the enjoyment of their daily surroundings; but they also desired to display to others these possessions, by which they instructed others and ennobled their tastes.

The beginning of the collection of art objects, which were

torn from their original connections, or whose possessions a appeared especially desirable, goes back into the antique period. Already Ptolemy Philadelphus (284-246 B.C.) arranged in Alexandria beside the Library a museum for art objects, a and this tendency was inherited also by the great and the rulers of the Italian peninsula, who there maintained themselves until the time of mighty political changes, and were then lost; but from the end of the middle ages it was aroused anew, and was cultivated to the highest degree.again at the beginning of the Renaissance. What we now have as art museums in Italy, in Milan, Venice, Verona, Bologna, Florence, Rome, Naples, Palermo, etc., are buildings seldom erected for their purpose.

402. Bargello in Florence.

The Bargello, the present museum for the history of Italian civilization and art of the middle ages and the Renaissance, was originally built in 1255-1266 as the residence for the c captain of the people, and then for the supreme judge (Podesta); then it became the seat of the police captain (Bargello) and a prison (1574-1782), and it was first arranged as a museum in the time of united Italy. The exhibition of art objects was dependent on the former purpose of the building; yet it was skilfully carried out.

403. Uffizi at Florence.

The Uffizi (Palace degli Uffizi) with its magnificent porticos (Fig. 584) was built in 1560-1574 by Vasari for administrative purposes, now contains in the uppermost story the famous collection of paintings, in the others being the National Library, the central Archives for Tuscany, and the Post O-Office. The loggias extending on the south, east and west s-sides of the elongated building, so rich in picturesque views toward Place Signoria and the Arno, are now glazed, and the adjacent rooms shelter the magnificent works of art collected by the Medici, and increased by the Lorraines. Likewise therein prevails not always the best light, not always the best proportions of the rooms, and only the so-called tribuna decorated by Buontalenti and Pocetti must be the sole hall, which was erected with regard to its purpose.

Moderate proportions in height, the walls covered with red damask, the surfaces of the dome incrusted with mother of pe-

pearl, the skylight is not large -- but the whole is a model and full of harmony! -- Likewise ideal and of peculiar beauty are the painted grotesques on a white ground on the ceilings of the upper great porticos by Pocetti (1580). 218

Note 218. One of these is reproduced in color in Roschdorff. Plates 47, 48.

Thus are also the conditions in Venice, Verona and Milan; the art works are piled up in old buildings of the brotherhoods and palaces, or former Jesuit colleges, with a frequently changed and corresponding equipment of the rooms.

404. Museum National in Naples.

In Naples the former Museum Nationale -- with its immense art treasures is indeed placed in a mighty monumental building, but which was not originally intended for this. It was begun in 1586 by the viceroy as a cavalry barracks, transferred to the University in 1615, and in 1790 was arranged for the royal collections of antiquities and paintings. The building recalls on the exterior its original purpose, and exhibits in plan (Fig. 585) on the middle axis a great three-aisled vestibule with an adjacent semicircular and grandly conceived stairway, that occupies the entire width of the three s sides; on the right and left thereof are two open courts with surrounding vaulted corridors, that extend to the street fronts at their ends, and adjoining these are a number of rooms of different sizes for sculptures; in the upper story over t
648 the vestibule is found a vast library hall, the room for the picture gallery, the collections of small bronzes, the collection of coins, whose walls chiefly follow those in the ground story.

649 The exhibition of art objects is then technically good and very beautiful rooms, particularly in the tastefully decorated and well lighted rooms of the ground story. This monumental structure indeed remains a dry and academical work, but is not unsuitable for a museum, that cannot and should not count upon fixed permanence.

405. Museums in Rome.

Things are otherwise in Rome, even if there also old monasteries and palaces are not excluded as museums. (Palace Conservators, Museum of the Baths, Museum Laterna, etc.).

Here are first the structures of Museum Vatican, that from

smaller beginnings have developed in the course of time to independent buildings designed for the purpose, and have become leaders for the rest of cultured Europe

The beginning was made by Popes Julius II, Leo X, Clement VII and Paul III, with the Belvedere erected under Julius II. by Bramante. But since the good in the world is not accustomed to take a straight course, the endeavors of these art-loving rulers were restricted. Pius V (1566-1572) removed these collections, gave away some of their contents, and Clement XIV (died 1774) first decided again for the preservation and extension. Thus then originated under Clement and Pius VI, the Museum Pio-Clemente arranged by Visconti, and under Pius VI.
650 (1775-1795) the hall of the Greek cross, the round hall, the state octagonal hall of the muses with the two square additions, all after the designs of Simonetti (Fig. 536). [219]

Note 219. Reproduced from Letorouilly, P. & Simil. Le Vatican et la Basilique de Saint-Pierre de Rome. Paris. 1882.

There were added to the court of the Belvedere the round d domed hall of the Biga, the hall of candelabras, and that of animals, to the originally square court with cut-off angles was added in 1775 the internal portico; in 1803 the angle halls were rebuilt as cabinets. Pius VII (1800-1823) planned the Museum Chiaramonte, and in 1821 caused Raphael Stern to add the Braccnio Nuovo with its 14 antique columns of cipollino, alabaster and Egyptian graniti. Gregory XVI (1831) further attached the Egyptian and Etruscan museum; Pius IX and Leo XIII likewise were not idle in completing and ornamenting the museums of the Vatican. that were intended to make their fame permanent in the world.

The arrangement of skylights and high side lights in the h halls is consequently properly carried out in these new museum buildings for the reception of works of statuary, and have remained standard for all later allied exhibition structures. The placing of the sculptures in the great circular hall (Fig. 538), in the hall of the muses and in the Braccnio Nuovo(Fig. 537) is a model and ideal, and it will then so remain also, so long as men demand for the beautiful products of art also a beautiful and dignified shelter!

The purpose of the museums has already become different in the last century. The intimacy between possessor and art work

had ceased; men no longer desired to enjoy alone the acquisitions obtained with toil and often at great cost; they wished them to be utilized for the use and profit of the cultured a and of the great multitude of the people, all were permitted to take places at the great table, who desired to partake of the divine fare. This great cosmopolitan tendency could only arise in the enlightened time of the Renaissance, that should further produce fruitfulness until our days!

406. Libraries.

Great libraries were already possessed by the ancient Egyptians -- collections of books (rolls of papyrus), that extend back into the 19 th century B.C. The Pisastratides in Athens must have had such; in the form of burned clay tablets with cuneiform inscriptions, were established permanent libraries in the Palace of King Assurbanipal in the 7 th century B.C. Libraries for purposes of instruction and for common use, the older with works on wooden tablets, are made known from the prealexandrine period. On the Alexandrine are to be mentioned the magnificent Library of the Museum in Alexandria, that before the great destruction by fire possessed 700,000 rolls, and that of Pergamon. These were built fireproof, surrounded by porticos, facing the east on account of the morning light; for the protection of the eyes were preferred floors of greenish marble; the bookstacks were closely set with frames extending to the ceiling, which were frequently made of costly materials (gold and ivory). A first public library in the grandest style was planned by Caesar in Rome. Augustus had such a one arranged on the Palatine; in the 4 th Christian century were 29 public libraries in Rome.[220]

Note 220. See Pauly's Real-Encyclopedie der classischer Altertumswissenschaft. New edition by G. Wissowa. Stuttgart. 1896-1900. Bibliotheken. p. 403-424. Also Clark, J. W. Care of Books. Cambridge. 1901.

Most of these treasures disappeared in the time of the migration of the nations; to the monasteries then fell the problem to collect the remainder, evidence of which is afforded by the libraries of the monasteries at Monte Cassino, Corvey, Fulda and S. Gall (Abbot Gosbert, 816-836). After the suppression of the monasteries, these books suffered further losses in times of war, and passed into the possession of states

or of cities.

652 In Italy at the time of the early Renaissance, Pope Nichol-as V (1447-1455) called into life the Vatican Library. In F Florence in 1444 a library was founded by Cosimo the Elder, which was permanently extended by the Medici, the Library Laurensiana. One saw in this collection little of the innate v value, but so much the more of the external magnificence of their works, their beautiful manuscript, their ornamentation by miniatures, and their costly clasps and bindings.

Corridors and halls in one or more aisles are shown by the earlier designs, in which were placed desks for the folios, which were attached by chains, and seats for the readers.

407. Library Malestina in Cesena.

One of the earliest library buildings, the Library Malestina in Cesena, was built in the year 1452 for Domenico Malatesta by Matteo Nuzio, a three-aisled elongated room, covered by cross and tunnel vaults, the middle aisle left free for passage, only the two side aisles being equipped with desks for the 4000 manuscripts. The room is divided into 11 bays, and has windows on both long sides and thereby abundant daylight. (Fig. 590).

408. Library of S. Marco.

To this is allied the Library of S. Marco built by Michelozzo in Florence, whose plan and cross section are given in Fig. 589.

653 409. Library Laurenziana in Florence.

Both these may be followed as a more important architectural undertaking by the Laurenziana in Florence (1524), begun according to the design of Michelangelo and completed by Vasari and Ammanati, with its capricious antehall and entrance stairway.

The room is also elongated here, but in a single aisle 36.0 ft. wide and 155.8 ft. long; it receives light from two sides through rectangular glazed windows, that commence 7.9 ft. above the floor with axial distances of 9.9 ft. The walls of the hall are divided by pilasters,and are animated by rectangular niches over the windows. The ceiling is of richly carved wood in panels and left in the natural color, the design of which is repeated on the floor in reddish-brown and yellowish clay tiles, executed by Tribolo. The stained glass is e

executed as grotesques on a ground of transparent white glass,
thus but slightly obstructing the daylight.[221]

Note 221. Good drawings of this hall with its vestibule,
its equipment and its glass windows may be seen in Raschdorff.
Pls. 31 - 37.

The beautiful carved seats with the reading desks (Fig. 591)
and the ornamentation were designed by Battista Cinque and Ci-
priano; the drawings for the glass windows are attributed to
Giovanni da Udine. (See Fig. 592, where is given the allied
comparison of a glass window from Museum Bargello.

410. Library of Vatican in Rome.

The Apostolic Library of the Vatican, founded by Nicholas
654 V as already stated, after the death of that Pope did not en-
655 joy the same special care; it was rather neglected, and was
only taken up again under Sixtus IV, was extended by Sixtus
V, who caused the existing building to be erected by Domenico
Fontana (1588), and which divides the great court of Bramante.
The great hall, in which against the wall and around the pie-
rs are 40 low cabinets, designed to receive the manuscripts,
is 232 ft. long, 51.2 ft. wide and 29.5 ft. high, covered by
vaults, that rest on six massive piers. The magnificently t
treated interior exhibits paintings on the ceiling and walls;
Pius IX caused the execution of the beautiful marble floor.
Richly carved tables with costly marble tops and vases adorn
this most magnificent of all library interiors.(Fig. 593).

411. Cathedral Library in Siena and other Libraries.

But this interior is excelled in beauty and artistic cont-
ents by the Cathedral Library in Siena (called hall Piccolom-
inea and also Libreria), built in 1495 at the command of the
later Pope Pius III, and adorned in 1503-1507 by frescos by
Pinturicchio. The ceiling is formed as a tray vault with in-
tersecting compartments, and is painted with extreme effect
with grotesque ornaments in full colors. The lower part of
656 the walls is covered by paneling 9 ft. high, and it is furni-
shed with tables projecting 2.5 ft., on which lie the choir
books furnished with precious miniatures. (Fig. 594)[222]

Note 222. A good view of this interior is given by Plate _
of the work of H. Köhler, Polychrome Meisterwerke, etc. Leip-
zig. 1870.

412. Other Libraries.

412. Other Libraries.

A change in the design of library equipment was produced by the invention of the art of printing, and therewith the multiplication of printed books, which required a different mode of exhibition. Instead of laying out costly and artistically works came the piling of printed books in cases placed along the walls and extending to the ceiling, divided in stories by galleries. In separate and richly carved closed cases we find the books exhibited in the Library of Philip II (1563-1584) of Spain in the Escurial (Fig. 595), where the lower cabinets receive folios, above which are provided tables for support, over these being the book cases adorned by Doric columns with shafts of different heights.

Thus was the arrangement in the Library of the Duke of Urbino, the book cases being placed against the walls.

The Ambrosian Library in Milan, arranged in 1603-1609 by C Cardinal Borromeo, likewise exhibits the placing on shelves along the walls with a gallery extending around above the eight lower rows of shafts, and to which leads the small winding stairs. The hall is covered by a stuccoed tunnel vault a divided in panels.

Notable are most state and city libraries of the Italian c cities, which are never wanting, and in their arrangement exhibit a system allied to nearly all the last mentioned modes of exhibition. The tasteless modern bookstack, where mostly all artistic treatment of the book shelves is excluded, will scarcely be found in a building of the time of the Renaissance.
657 What we have today in our storage libraries is chiefly a m mere combination of the older and newer Italian systems, in which book cases occur instead of desks, retaining the wide passage and the exhibition, such as we have learned to recognize in S. Marco in Florence, in Cesena and in the Laurenziana. Here again the Renaissance men are our instructors.

The Library building in Palermo may here be mentioned also on account of its grand court with the original division between two arcades placed over each other. (Section XVII; Courts. Fig. 436).

Until modern times extends the Library in Parma, established by the Theatine Pat ner Pociandi in 1761, which was dedicated by Don Ferdinando de Bourbon in the presence of the Emp-

Emperor Joseph II, with its magnificent corridor for the exhibition of book cabinets and the grand reading hall, which w was arranged by Maria Louisa in 1834. More than 300,000 printed items and 4,760 manuscripts are now contained by the library, whose rooms are magnificently decorated. (Fig. 596, from Italia Artistica No. 19, Parma, by Laudedeo Testi. 1905.

413. Library of S. Marco at Venice. (Biblioteca Marciana).

Not on account of its arrangement, but on account of its e external form should be mentioned the Library in Venice -- L Libreria Vecchia. Built in 1536-1550 by Jacopo Sansovino for the Library of S. Marco, it always still passes as the most magnificent secular building of Italy, but according to the opinion of Ja Burckhardt (Cicerone, 5 th edition, p. 247), a after its most innate nature is nothing more than a magnificent piece of decoration (Facade in Figs. 269, 270), and yet the antehall and the main hall with their ceiling decorations are not to be summarily set aside. Elsewhere he speaks concerning the building, of the "stiff shadows of the members," and names it the "finest two-story portico on earth." But a two-story portico is not to be decided by him, and "stiff shadows" is not a properly employed order of words. Furthermore the principles of the mode of exhibiting and of using books has become different in time. The facade system of the modern warehouse was still not the leading motive for their architecture.

1. Administrative Buildings, Banks, Business Offices and Warehouses.

414. Buildings for Administration, etc.

Another link in the chain of public monumental buildings is formed by the service buildings with their offices for the n high state and city governments. Likewise here were means n not scanty; the corresponding structures are permeated by the same inspiration as those serving for the higher purposes; t the power and the dignity of the state should also be expressed in these works. The republic od Venice comes nearest to this aim by the so-called "Old Procurations" built about the end of the 15 th century (1480-1517) by Bartolomeo Buono, Guglielmo Bergamasco and Pietro Lombardo, which reflects the expression of a "splendid and joyous existence." They served as official residences for the procurators of S. Marco, and con-

contained their offices, nothing more of which indeed is to be recognized now in the interior. Opposite these was erected in 1584 the so-called "New Procuratios" by Vincenzo Scamozzi, which are arranged as a library and a royal palace, receiving their termination by the "New Fabbrica", to which was s sacrificed in 1810 the Church of S. Gemigiano built by Sansovino.

658 As the city offices and warehouses also served the "Fabbriche Vecchio" at the Rialto, built in 1520 by Scarpagnino, to which Sansovino later added the "Fabbriche Nuove", richly decorated by pilasters.

A warehouse with the offices of the German merchants, the "Fondacho de'Tedeschi, was [224] again rebuilt after the fire of 1505 at the cost of the State by Fra Giocondo da Verona ((1506), and was simply treated on its exterior, but was adorned by paintings of Titian and his pupils on the facade surfaces, which have now disappeared. "If well preserved, the building would have been one of the first buildings of Italy."

Note 224. See Burckhardt, J. Der Cicerone, etc. Basle.1860.

The most magnificent exterior is possessed by the highest administrative building of the State, Palace Doge, in its court facade by Antonio Bregno and Antonio Scarpagnino.

659 On the contrary the Uffizi in Florence appear simple and e earnest, which were built by Vasari about 80 years later than the Procurations and for the same purposes.

Between the splendid and gayer architecture of Venetian masters and the earnest kind of the Tuscans stands the Cancellaria of Bramante in Rome, in which is expressed in the noblest and most dignified manner the purpose of the architectural s structure, particularly in the expressive columnar court. (S (See the plans in the work mentioned. [225]

Note 225. Letarouilly. Vol. 1. Pls. 78-80.

Likewise the beautiful, though no longer existing Bank of the Medici by Filarete (Michelozzo ?) in Milan must still be mentioned here, a stately and earnest palace with rusticated ground story, beautiful entrance portal, 12 windows like Gothic in the upper story, and an antique cornice with consoles. (Fig. 9).

415. Portico de' Banchi in Bologna.

As the last massive building of this kind is named the Por-

Portico de' Banchi in Bologna, with its peculiar arcade faca-
de with numerous windows.

"Certainly a work of an architect (Vignola) is the facade
of the Bank on Place Victor Emanuele" -- built in 1562 accor-
ding to G. Zucchiati (Memorie e Studi on Jacapo Barozzi, pub-
lished on the 400 th anniversary of his birth by the care of
an honorary committee. Vignola. 1908. Plas .9 and 10. p. 226
et seq).

Jacob Burckhardt says of the building, that in its present
form it first came from Vignola,"who in a very original mann-
660 er knew how to subordinate a multitude of small rooms and win-
dow openings to a novel and grand main subdivision." On this
Zucchini remarks, that he knows nothing better to say, than:--
the novel division of the openings gives a grand character,
but he also believes, that the numerous windows may not be p
pleasing, though this is again lessened by the symmetry and
harmony of the main lines. Professor Haupt, on the plate of
the facade (Pl. 19) of his book of plates of palace architec-
ture of upper Italy, nmaes a Carlo da Limito (1562) as the ar-
chitect, and it is stated in Baedeker, that the building was
restored in 1888. According to Milizia, Vignola had planned
two small towers beside the two passages to the side streets,
but they were never executed.

Zucchini then published two representations of the facade
of the Portico dei Banchi toward the Place, one of which, ac-
cording to an engraving of the 17 th century, bore the annot-
ation:-- "built in the year 1572, architecture of Jacopo Bar-
ozzi da Vignola." with the corresponding plan. That is indeed
all quite beautiful, but what is correct? The authorship of
Vignola must not be in question, but the artist must have in-
cluded in the engraving quite large changes from the executi-
on. In the engraving, the dignified and quiet palace facade,
quite contrary to the reality,has in the mezzanine and the up-
661 per story arched and rectangular windows, like a modern ware-
house,-- a sort of Jewish architecture.

The number of arches and of street passages, as well as th-
eir locations, agree in both drawings of the facade. Who th-
en made the openings beside the windows in the middle ages?
Was he really Vignola or the Carlo da Limido, not to be found
elsewhere?

Likewise the continuous wrought iron parapet railing on the cornice before the windows of the upper story is not to be f found on the engraving, just as little as any statement in s secular manuscripts on the alteration of things. Also the g great shields of arms above the two passages must indeed give place to the small windows. (See the engraving in Fig. 598, and further the present general view in Fig. 597, as well as the portion of the facade with three axes in Fig. 599). I could not now learn who made the alterations. The numerous and differing small windows may well have made possible a greater number of small and well lighted business rooms, but academically considered, the facades have not been beautified.

F. Malaguzzi Valeri, the intellectual author of the work, L'Architettura nel Rinacimento, 1899, p. 194, likewise recognizes Vignola as architect:-- "A well known building, certainly due to Vignola, is the Portico dei Banchi next Place Maggiore in Bologna." The structure was begun in 1560 and was not yet completed in 1565.

He does not hold the facade to be a work of a single gush, but as an adaptation. He had to reckon with different arrangements on the building from the preceding time, and the requirements of his employer, to create a great number of sanitary and light business offices, and to produce results. So much for his excuses; but then the learned master still appears in the strongly treated building with arcades, porticos and pilasters, and a lattice of the long row of windows of a all sizes. But if one considers the diffliculties mastered, one must look on the entirety as again the victory of a gifted architect, who has conquered the difficulties opposing him.

This indeed was also expressed earlier by Jacob Burckhardt, and was only repeated in somewhat different words by Malaguzzi Valeri and Zucchini, but the contradiction between the two facades was not solved thereby. Yet the two masters named a are both silent concerning a Carlo da Limido in the year 1562.[226]

Note 226. For the restoration of the Palace dei Banchi Comm. Cesare Lugli first busied himself in 1887; the engraving mentioned is preserved in Archivio dell' Ammne degli Ospedoli; the restoration was conducted by the engineers Leonida Bertolozzi and Aug. Muzzi. The brickwork of the facade was left in ordinary brickwork, only the joints being struck with lime

mortar (later). A coating of plaster or color does not exist. The restored surfaces were only thinly coated with water-glass, but neither oil nor caseine colors were used on the facade. The red color is the natural color of the bricks; the cut stone is from the quarries of Vergato near Bologno, and for sandstone the so-called Maicene is used. This information I owe to the director of the waterworks there, Mr. Carlo Schmidle.

e. City Halls.

416. City Halls.

The city halls of the Renaissance, sometimes termed Palace del Consiglio, Palace Della Ragione, Palace Prefetizzio or P Prefettura, sometimes Palace Comunale or del Comune, Municipio, etc., adhere in their parts and the arrangement of the r
602 rooms more or less to mediaeval models, great assembly halls, small offices, house chapels, living rooms, wide and vaulted corridors opening on the street or internal courts, which permitted access to the separate rooms, a regular arrangement of the windows with usually imposing axial distances on the facades are the characteristics of these palaces of the city council. Sometimes appearing simple and defiant, sometimes of costly materials, glowing in colors and gilding, these appear externally.

The mediaeval models in Florence (See Fig. 600) and Siena, there a structure like a fortress, the latter a brick building, are furnished with defensive galleries and battlements, still mostly provided with square towers respectively 310 and 340 ft. high, -- arrangements that were also usual elsewhere for these buildings of the same time (Bologna, Vicenza, etc.).

417. Palace del Pretorio in Pienza.

This very effective accessory structure had a purpose and sense as a lookout and later as a signal and clock tower (Siena, Pienza, Bologna, Vicenza), it was retained still in the early Renaissance in like manner, as shown by the example in Fig. 601 by the small Palace del Pretorio in Pienza, built a about 1450.

The open portico on the ground level, the massively treated upper story with its double round arched windows, that were picturesquely continued at the side, a not very high tower w with the added battlements give to the whole a characteristic appearance, in which two tendencies contend with each other.

The battlements of the tower are already omitted on administration buildings and residences, where architecture alread breathes a classic repose, while the small towers boldly look down upon the Place. (Fig. 601).

418. Palace Prefettizio in Pesaro.

An additional mediaeval flavor, but also distinctly bearing the stamp of the early Renaissance, is yet shown by the Palace Prefettizzio in Pesaro in its chief parts built by Duke Guidobaldo of Urbino, who died in 1508.

The arcade portico still has the form of the pointed arch on the side next the street, the ornaments frequently show a Gothic stamp; on the contrary the round-arched portico on the main facade rests on rusticated piers, above which are arranged 5 large windows without regard to the axes of the arcade. The window openings are flanked by Corinthian pilasters; the frieze above is decorated by palmatiums, and on each cap are two cupids with garlands, shields of arms and waving bands. The middle window is furnished with a balcony; a crowning cornice without consoles and with a great egg moulding terminates the building. The piece of magnificence in the interior is
663 a great hall 52.6 × 132.0 ft., with a painted and carved coffered ceiling, with octagonal between lozenge coffers, whose great rosettes rise from a blue ground,[227]

Note 227. A sketch of the facade is to be found in W. Lübke's Zur Italienische Kunstgeschichte. Zeit. f. Bild. Kunst. Vol. 5. 1879. p. 355 et seq. A view of its present condition is shown by the photographic illustration in Fig. 20. According to the intarsia in Italian Artistico (Pesaro), No. 42, illustration on p. 20, the building had a series of battlements and a balcony at the corner.

419. Palace del Comune in Ancona.

A mixture of forms, as on the City Hall in Pesaro, is also found on Palace del Comune in Ancona, built in 1470 by Francesco di Giorgio, where the court is surrounded by pointed a arcades with archivolts like the antique, that rest on massive piers, in which small angle columns are inserted after the mediaeval fashion, while pilasters with palm capitals animate the surfaces of the piers and show themselves as works of the early Renaissance. (See the cross section of the pier in Section XVII; Courts, Fig. 471). As further works of this phase

of the style appear the two entrance portals to the court of the City Hall, which are treated after the style of the Roman triumphal arch, when they exhibit slender composite columns beside the round-arched openings. One bears the date of 1400, while the upper and richer one by Matteo da Ancona is dated 1493.

420. Palace del Podesta and Palace Comunale in Bologna.

The present City Hall in Bologna, formerly Palace del Podesta, dating from the beginning of the 13 th century, was partially rebuilt after the fire by Fieravante Fieravanti in 1428, and was mentioned among the Bolognese palaces. (See Art. 175, p. 352). Notable there is the reappearing great portico, the so-called Hall de Re Enzio.

664 Palace Comunale or del Governo in Bologna likewise dates f from the middle ages (begun 1293, until the most recent time furnished with various additions and rearrangements, also containing a stairway by Bramante (1509)), is a massive structure with galleries, halls with frescos, courts, stairways and decoration by statues, furnished with a pointed arcade and b battlements next the Place, and with a heavy clock tower with Barocco spire at the angle, with the heavy mediaeval tower added, as well as to the before mentioned City Hall.

As the most important parts from the Renaissance period are to be designated the clock tower and the enclosure of the main entrance, that was by Galeazzo Alessi. 228 enriched by a niche structure by D. Tibaldi (1581). -- The round-arched entrance gateway is flanked by coupled Doric columns on pedestals and supporting a triglyph cornice, over which extends a balustrade, above which appear coupled Ionic columns with a massive low pediment. In the midst of the shrine thus formed in the upper story is arranged a flat niche spanned by a round arch, in which is enthroned the blessing and seated bronze figure of Pope Gregory XIII (Buoncompagagini from Bologna) e

665 executed by Manganti. Below the figure appear effectively t the great papal arms -- on the whole an equally beautiful and massive portal structure of the advanced Renaissance, but which in spite of its other style forms, nowise influences the effect of the facade in general.

421. Palace Rector in Ragusa.

In the category of the previously mentioned city halls bel-

belongs to Palace Rector in Ragusa with its interesting columnar portico and the court with open stairway, but which was first added in 1667. The building itself was planned in 1388; in 1435 was destroyed by a powder explosion; it was afflicted by a similar catastrophe in 1462. In 1464 Michelozzo was called on for an opinion concerning its restoration; with him came a native Dalmatian, Giorgi Orsini, who then indeed had to put the building in order again, since this probably merely referred to improvements. [229]

Note 228. See Malaguzzi-Valeri. p. 210 and Fig. 73; also Fig. 611 of this Section.

Note 229. Also see Berlepsch, H. E. and F. Weysser. Bauten in and um Ragusa. Zeits. f. Bauw. p. 217 et seq.

422. Palace del Consiglio in Verona.

Fra Giocondo (1435-1517) broke from mediaeval reminiscences in the palace del Consiglio at Verona. His authorship is now doubted.

The work breathes cheerful repose and gayety; everything g gloomy and dull in its nature is forbidden. A deep loggia w with round-arched arcade on marble columns, where the arches are placed directly on the capitals resembling Corinthian, f forms the ground story, that is only raised 5 steps above the street and is separated from that by a balustrade; above it rises an upper story subdivided by pilasters and with magnificently beautiful double windows, terminated by a main cornice like the antique, on which are placed free figures corresponding to the pilasters. Members of the cornice, panels of pilasters and capitals were gilded, the wall surfaces were d divided into panels and brightly painted with the noblest treatment of all details. In the full sunshine, with the blue sky, a wonderful architectural view, that the preceding art epoch flung down among surroundings amid the scorn of enemies; The interior is greatly changed, but still contains some beautiful marble doorways. (See a drawing of the facade in Fig. 97.

423. Loggia del Consiglio in Padua.

At the same height stands the precious Loggia del Consiglio in Padua built by Biagio Rossetti, an early Renaissance work of the noblest kind (Fig. 602), constructed of white limestone. On a high base rests the portico, to which leads a massive flight of steps. The windows of the upper story are gro-

grouped in pairs and threes, above which are built quiet and broad wall surfaces and a rather dry main cornice.

424. Palace Comunale in Brescia.

Likewise with noble general appearance is the Palace Comunale in Brescia begun by Formentone in 1508, and called "the Loggia." The building stands detached on all sides, and in t
666 the ground story is divided in depth into two portions of unequal size, one of which is occupied by the very effective portico supported by 4 columns and spanned by 9 cross vaults. (Fig. 603). [230] Peculiarly inserted Corinthian wall columns subdivide the massive piers, that receive the upper story. T The spandrels of the supporting arches are adorned by sunken medallions with busts of Roman emperors. The wall surfaces of the upper story have rectangular windows, that are enclosed by pilasters with richly ornamented entablatures, and are further subdivided by the pilasters of the story. The elongated panels arranged at right and left of the same are decorated by medallion disks of dark marble, while all other parts of the building are made of white marble; an antique entablature with rich frieze terminates the facade at top, which is further crowned by a balustrade with projecting vase-bearers as water-spouts. The exterior is more pleasingly beautiful than earnest. The windows in the upper story were attributed to Palladio and the frieze to Sansovino. the balustrade is of later date, as well as the octagonal structure erected behind it and unfinished.

Note 230. From Hauser, A. Stil-Lehre der architektonischen Formen der Renaissance. 2 nd edition. Vienna. 1899. p. 35.

In the year 1575 a fire destroyed the great hall and the v vaulted roof covered with lead, whereby valuable paintings a ascribed to Titian were also destroyed. Vanvitelli injured
665 the exterior by his restorations (Fig. 605), and now (1902) men wish to lay hands again on the building and to destroy t the wonderful work by rebuilding, instead of piously preserving it!

425. Palace Pretorio in Lucca.

As an expressed and austere work of the Italian early Renaissance (15 th century) is yet to be named the Palace Pretorio in Lucca by Matteo Civitale (?), which exhibits on the front a portico with four semicircular arches resting on columns,

on which rests the upper story with Tuscan double windows and open upper round panels. Above this is arranged a half story with small rectangular windows and a Corinthian cornice with consoles.

426. Basilica and Municipio in Vicenza.

The so-called Basilica in Vicenza and the Palace del Capitano (now Municipio) lying opposite it must be mentioned here as indeed the most splendid communal buildings. The nucleus of the first, formerly Palace della Ragione, with the adjoining narrow red brick tower 268 ft. high still has pointed arched architecture, and it was first enclosed in 1549 by the wonderful porticos of Palladio executed in white marble. The plan (Fig. 606) contains at the ground level within the four walls a hall covered by cross vaults, whose ceiling is supported by 12 piers. The stairways to the upper story lie free within the enclosure and lead to the mighty hall with a single aisle, which is covered by a cloister vault constructed w with log arches (Fig. 607). To resist the side thrust are a arranged two iron ties above each other, which are omitted in the illustration mentioned, in order to not disturb the form of the roof and of the descending ribs. 231

Note 231. Likewise in the so-called hall of the medieval Palace della Ragione -- built as a "Law basilica" in 1172-1219 in Padua, one hall has an area of 272.3 x 91.9 ft. with a height of 78.7 ft., but which was only erected in 1420 -- the similar ribs are composed of 3 thicknesses of logs, and are likewise anchored twice in height, when the tie-rods are twice supported. The longitudinal connections in both cases are m made by the internally visible sheathing of boards; the side thrust is directly resisted by the aforesaid iron tie-rods a attached to the pairs of ribs.

668 The exterior at all events belongs to the most magnificent works of the later Renaissance, at the same time being the c chief work of Palladio (Fig. 608), constructed of solid and most durable and dignified material with the use of great ashlars, such as shown by the keystones of the arches, that are all through stones, as well as the architrave, for which only entire slabs were used. Not easily would be found a grander and more beautiful architectural structure on God's broad earth, than when from the side street on which the Municipio

stands, one allows the gaze to fall on the Basilica across t the Place, yet more massive in effect under the setting sun, when tower and roof appear marked by the glow, while the light gray architecture of the Basilica is covered by a bluish haze, and quiet and silence prevail on the Place!

427. Bell and Clock Towers.

If it has been mentioned, that for many secular buildings, to which were then added lookout, signal and clock towers, as well as bell towers (campaniles), and these are to be characterized as effective architectural accessories, then in most cases in connection with public buildings, these play an important part. They enhance the effect and importance of a structure, and frequently determine the character of the view of the city.

428. Historical.

They were originally erected for reasons of fortification in connection with the defensive works of a city, as by the
669 Asians, Greeks and Romans. In this sense they still played an important part in the middle ages until in the time of the Renaissance, or until the use of the heavier artillery.

The emperor Constantine assigned to towers a more extended role, when he also furnished the Christian Houses of God with such, in order to call the believers to the divine service by far resounding bells. They became bell supporters, campaniles (campana = bell), simple, isolated tall structures equipped with openings for sound and roofs. It was left to a later time to create an organic connection between bell tower and God's House. Likewise Islam made use of the arrangement by erecting minarets at its mosques, for an elevated platform f for calling believers to prayer. In time they announced the hours to the inhabitants of a city. Prominent Romans arranged for the announcement of the hours for their private use by slaves designated for this purpose in their residences.

429. Campaniles.

Soundless, yet visible for the great multitude, men employed from the earliest time sun dials for determining the hours, which were exposed in public places (Pnyx in Athens, Pergamon; see Vitruvius, Book IX). They were invented by the Chaldean Borosus (Berosus ?). Chaldean, Phoenician and Egyptian priests, Grecian philosophers, physicists and astronomers busied themselves with their construction, and Democritus wrote a

treatise on them in 410 B.C. The sun dial wandered in later times to the wall surfaces of the bell towers of Christian churches. These had then the twofold purpose of calling to prayer and of giving the time -- the latter office at least during clear weather and sunshine.

430. Tower Clocks.

The Church gladly utilized the twofold purpose of its towers, that had become a Christian characteristic; but also secular rulers desired to consider them as arrangements for giving an alarm and for showing the hours of the day. Thus also for secular officials they had the same twofold purpose and importance of their authority. The sun dials could not serve

431. Town clocks with bells and dial in Vicenza.

670 on all days and seasons of the year and were no longer satisfactory, so that men sought new means for announcing the hours, and adopted the striking apparatus, that would sound afar the passage of the hours to the city dwellers, and with it was joined also a great figured dial with indications of the hours. The evolution may be made clear by an example:-- in the year 1174 the Bessari family built a residence with a tower on Place delle Erbe in Vicenza, which was sold to the community in 1226, and in it the podesta with his family took up his residence. The tower constructed of red bricks was then carried to the height of the double windows, that is to the belfry, and in 1446 was extended to a height of 269 ft. with an unchanged plain breadth of 23 ft. It first received a bell

671 in 1320, and in 1377 the first clock was equipped with a striking bell, "which should give the stroke of the hour to the entire city." After it withstood an earthquake in 1347, it was furnished in 1626 with another bell, the "bell of the realm." The figure dial today still occupies the 23 ft. width of the tower, and is inserted at the middle height of the tower (Fig. 609). From the palace tower, through the bell tower with striking apparatus, hands and dial -- the fate of so many others. This last arrangement was also later adopted by the Church in regard to its own tower structures. After it had combined bells into the "artillery of the clergy," according to a phrase of Napoleon, the far resounding stroke of the hour could not be wanting.

432. The Clock Tower in Padua.

A purely clock tower (tower of the clock") was built on the

Palace del Capitano at Padua [232] by Falconetto (1458-1534) in stately magnitude, although the palace as a whole is not of high importance; then that erected in 1496-1499 at the entrance into the Merceria on Place S. Marco at Venice.

433 Venice

On its platform stand two bronze giants (by Rizzo), who strike the number of the hours on a freely suspended bell. The work is now ascribed to Mauro Coducci from Bergamo, the gilded Madonna there must be from the workshop of the Lombardi. (See Fig. 610).

Note 232. An illustration in "Italia Artistica," No. 6. P Padua. p. 130.

434. Udine.

A repetition of the motive of the bronze bell striker is f found on the clock tower in the vicinity of Palace Civico at Udine. (See Section XXI, Fig. 682; marketplace in Udine).

435. Bologna.

Of high interest are the "Historical Notes" of Alfonso Rubbiani on the Clock tower of Palace dal Progetto di Ristauro (1492-1550). Its present form and its location on the angle of the massive building behind the mediaeval battlements and above the three story Gothic arcade structure, is retained in general and has only experienced a change by the form of the dial and the addition of a Madonna high above this, after the model on the clock tower at Venice from the time of 1492-1499.

672 Accordingly but two groups are to be distinguished, one of which has for a model the arrangement of the tower above the defensive gallery, as on Palace Vecchio at Florence, the other adopting a tower structure developed from the ground upwards, which is expressed in the most perfect manner on the City Hall at Siena.

436. Signal and Bell Towers.

Otherwise treated and still more separated in elevation are the lookout, signal and bell towers, for which the Tower of S. Marco (Campanile di S. Marco), 321.5 ft. high, the Campanile at Venice, has remained determinative.

437. Venice.

Its erection was begun about the year 900 -- originally conceived as a clock tower (Torre dell'Orologio) -- it was restored in 1148 and 1329, rebuilt in 1512 and fell in 1902, its rebuilding commenced in 1905 in order to stand again in its original form.

Fig. 612 shows its plan, section, and the kind of foundation before the fall, according to my Essay in the South German
613 Bauzeitung (Munich, 1902), to which I must refer for the details. The substructure was and is again subdivided vertically by bands and terminated by a belt cornice, above which rises an open loggia with four openings on each side, over which is arranged a structure like an attic without windows, on which the square pyramid of the tower cap, with an angel figure at the apex, forms the termination.

Figs. 612 to 615 show what the Italian architects have made of their Campanile since the great misfortune. The illustrations are taken from the French journal "L'Illustration" of April 20, 1912.

438. Rebuilding the Campanile.

Good conclusions have not exactly been wanting to the invited Italian technicians, who were also never agreed on what should be done. From Germany and Austria came many fanciful opinions on the causes of the fall, and still worse ones on
614 the rebuilding of the tower in the "spirit of our time" (where is that ?), and also concerning the building material to be employed. As if the native land did not offer the best!
615 In Italy at most Milan or the Riviera could present innovations in style. But sound sense remained victorious, and it was rebuilt again in the same way in which it was destroyed. The external architecture was retained, but the construction in the interior was made lighter and also better, whereby the weight and the pressures on the soil beneath were reduced.

The ancient piles were properly left; but the new were added in increased extent; the new piles surrounding the old were driven deeper to the "clayey ground"(Fig. 615).

The ancient stone foundations were left to the internal surfaces of the walls of the old, or also of the new tower, which are equivalent, but from these new ones were constructed to the outside of the piling, that bears the masonry of the new tower, i.e. the external walls. (See Fig. 613, section t through the new building). Thus after mature deliberation t the correct mode was found, and the usual good work of the I
616 Italians in architectural structures affords further guarantees. Fig. 614 gives the construction of the new apex of the tower with the angel figure.

f. Hospitals and Asylums for the Poor.

439. Hospitals.

A dreary purpose, but a cheerful exterior," says Sabellicus of a Venetian hospital, and this saying is true of most hospitals of Italy.

Like churches and palaces these buildings were also conceived with "Renaissance art rejoicing in beauty," whereby magnitude and suitability were not left out of consideration, but still arouse our astonishment.

Whoever indeed desires to apply to these buildings and their arrangements the scale, that our present physicians on this side of the Alps have created, would make a mistake; but he also goes amiss, if he believes, that the Italians of the 20 th century do not understand how to adopt the good points of our arrangements.

These monuments of the piety and noble feeling of the citizens and monarchs go back in Italy till in the 13 th century, from which time date the Hospitals of Maria della Scala in S Siena and that of Maria Nuova founded in Florence in 1285, b both highly regarded at the beginning of the Renaissance. B Both institutions were surpassed by the erection of the Hospital Maggiore in Milan.

440. Hospital Maggiore in Milan.

Filarete gives detailed information concerning the latter in his Treatise on Architecture, [233] where he introduces a report to his prince with the words:-- "I wish to specify to you, how I have built in Milan and describe to you its arrangement. After the site was decided on, the extent of the building was fixed at 783 × 306 ft., that should be beautiful and also at the service of sick men and women, also of illegitimate children." He further lays a particular emphasis on the convenience and cleanliness of the privies, which arrangement would correspond to the location of the city ditch, that flowed along the site of the building, which could also be u utilized for reception of all garbage produced in the hospital.

Note 233. Published by W. von Oettingen. Vienna. 1890. p. 332 et seq.

Filarete then describes the detailed dimensions of his plan, its foundations and the sewers within the same, [234] then the ground story, the location of the bottom of the cellar, that

he places 1.9 ft. higher than that of the watercourse, into which the privies emptied, then these themselves; between each two beds is a little door, that leads into the vault, where the sick find their seat with the opening, through which all sewage passes into the ditch in which the water runs. In the latter the water washes away everything, and no odor can appear, since these privies first have the further excellent arrangement, that they are always closed, through which the water runs and is soiled, and since further at every 19.2 ft. apart are arranged two air shafts carried upward through certain piers. If these privies should ever smell badly, then are they veytilated through these flues, that extend above t the roofs. But they receive the rainwater from the latter, which they conduct into the sewer.

Note 234. See the same. p. 338.

577 Then comes the arrangement of the external and internal stairways, then the arrangement of the subordinate rooms as dressing rooms, dispensaries, bathrooms, etc., and further those of the sick wards, of the principal court between the divisions for men and women, the dead vault, the dwelling of the clergy, the hospital church, the plans of the men's and women's divisions, the housekeeping, etc. Nothing is overloaded and nothing is forgotten; all is considered; the architect d does not lose himself in the facades; he places particular value on the suitability and the technical details.

To the Treatise considered are added a ground plan and a drawing of the facade, which we reproduce after Oettingen's Essay in Figs. 616 and 617.

But of Filarete's plan only the right wing was executed, and that merely in a simplified form. The corner stone was laid with great ceremony on April 4, 1457, and the building was carried on by Filarete himself until 1465, at which time he was forced to yield to the intrigues of his Milanese superintendent and colleague. "I am hated here," he wrote at that time in regard to the treatment experienced by him. After h his departure the building was continued by Solari and other Lombard architects. By Ricchini (1624) was completed the magnificent principal court surrounded by Renaissance arched porticos, Carlo Bizzi and Giorgio Rossoni after Ricchini undertook the continuation of the work, and brought it to an end

678 in 1806.

679 The work thus continued for three and a half centuries. F For its external architecture, that according to the preceding lacked any unified character, there always remains the pointed double windows already mentioned, that exhibit the interesting combination of Gothic and antique forms, and the window enclosures made of deep red terra cotta with their ascending vines and cupids climbing therein, are a title to the f fame of Filarete and the awakening Renaissance.

Nine internal courts partly surrounded by porticos were erected in time as in the plan of Filarete, enclosed by the various buildings of the institution, that made possible a separation of the different sick persons, and these were of such great dimensions, that the separate structures received light and air in abundant measure. The same is also true for the vast halls for the sick, in which the beds were widely spaced, and in which the sick were assigned an air volume, such as in no other hospital in the world.[236]

Note 236. F. Cassina in his work, "Le Fabbriche piu cospicue di Milano (most prominent buildings of Milan), gives the plans of the existing arrangement with the remark, that in regard to the grandeur of conception and of richness in execution, it must be named in the first place in Europe.

680 The domed church building with four small flanking towers like minarets, taken into consideration by Filarete, in the midst of the great middle court, the lost monument of the Christian religion, was omitted and compelled to giveplace to a moderate hospital chapel, that partially occupies the middle part of one side of the great Ricchini court.

441. Hospital S. Spirito in Rome.

As a foundation from the time of Innocent III should be named the Hospital S. Spirito in Rome founded in 1198, that by additions made by Sixtus V and after him by Innocent VIII was extended to be the most important hospital in Rome. Many of these were erected by Baccio Pintelli, perhaps also by Pollajuolo, others by Antonio da Sangallo and by Fuga. The alter in the middle of the great hall is by Palladio.

The building now contains a vast hall in a single aisle for fever patients, one adjoining it at right angles for wounded persons, rooms for surgical operations, also large and small

rooms for different patients, altogether being 12 halls with 1680 beds; then an anatomical museum, a library, dispensary, instrument room, etc., and in an addition the hospital for f foundlings and another for those with infectious diseases; t these rooms can contain 800 and 500 foundlings (Fig. 618).[235]

Note 235. From Letarouilly. Vol. 3. Pl. 2-6.

Another plan in Rome yet seems worthy of mention on account of the unusual simplicity of the building; the Hospital S. G 681 Giovanni de'Genovesi dating from the end of the 15 th century, founded by the Genoese architect Maria Duce Cigala. Much has also been changed in this hospital in the course of time; yet the court has remained untouched.

442. Hospital degli Innocenti in Florence.

As a predominant architectural undertaking must be designated the Hospital degli Innocenti in Florence, that was begun by Brunellesco in 1419 at the cost of the silkworkers' guild, and was extended in 1427 by Francesco della Luna, but was only completed in 1451. Its wide and airy porticos above a high flight of steps, constructed of grayish-green Macigno sandstone, with the charming terra cotta medallions of Robbia as ornaments of the arch spandrels, with the low upper story and its simple rectangular windows with angular caps and plastered wall surfaces remain an inviolable work of the Florentine early Renaissance. Of the architectural treatment of the square internal court Fig. 619 gives information, while Fig. 620 affords an illustration of the entire arrangement of the plan.

443. Ragusa.

Florence exhibits in this building one of the first foundling asylums, contrary to which the suburban pile of Ragusa c claims to possess one of the first foundling hospitals in Europe. (1432).

444. Genoa.

A larger hospital is the Hospital for Incurables in Genoa named Parmatone, built under the direction of the architect A. Orsolino in 1420 at the cost of a learned jurist, with its court measuring 65.6 × 118.1 ft. and its sick halls 311.7 ft. long and 36 ft. high. Through the portal executed in white marble, a grandly arranged vestibule leads the way into the interior into an astonishingly beautiful court. At first only

682 intended for women, it was enlarged for men by the addition of another structure. Interesting for the sick halls is the mode of removing wastes and of ventilation (Fig. 621). This is effected by an original system, when between the ceiling of the hall and the floor is left a space, supplied with exhaust flues and lighted by little windows in order to make possible an effective ventilation through the space. According to this the openings from the hall are arranged with valves regulated from below, through which may pass the foul air from the hall without any need for opening the windows.

445. Pistoja.

In conclusion and to confirm the statement of Sabellicus w was again conceived the Hospital del Ceppo in Pistoja, whose founding also extends back into the time from 1277, but which was restored and adorned by the splendid front building, with the airy portico and its ever beautiful and brightly colored majolica frieze by Robbia (1525-1535), representing the seven works of mercy. Can there be a more elevating exterior, a relatively richer decoration for a hospital than this frieze?

446. Hospital for Plague Patients in Verona.

A hospital for patients ill of the plague and of other epidemic diseases was built for the city of Verona by Sanmicheli. Its plan was published in the work mentioned below. [238] Around a court 787.4 ft. long and 357.6 ft. wide are arranged small adjacent separate cells 15.0 × 15.0 ft. in area with a corridor before them 10.6 ft. wide and 15.0 ft. high. The court, with a small church at its middle, is subdivided by walls into four parts on irregular form, so that a fourth of the church may always be seen by the occupants of the cells in one

683 part of the court. Adjacent to the cell structure are the a administration rooms and the service dwelling of the director.

Vasari says of this building, " that it could have been much more beautiful, if among the founders had been found some persons with larger souls."

Note 237. From Hittorf, J. J. & L. Zonth. Architecture moderne de la Sicile. Paris. 1835.

Note 238. Ronzanier, F. & J. Luciolli. Les Monuments civils, religieux et militaires de Michel Sanmicheli, architecte Veronese. New edition by E. Dionaux. Genoa. 1878. Pls. 58-60.

447. Almshouses.

447. Almshouses.

Other structures based on benevolent foundations are the a asylums intended to receive the poor, mostly extensive, and known in Italy by the name of Alberghi dei Poveri (Lodgings for Paupers), which entirely belong to the late period of the They are all more or less houses of benevolence and correction. Paupers of both sexes and all ages were received; orphans and foundlings learn a trade; men and women are required to labor in all ways; benevolence opens an asylum for the defective; justice provides rooms for the punishment of the guilty.

448. Genoa.

One most worthy of notice and of the largest designs as an asylum for the poor is possessed by Genoa in its Albergo dei Poveri.[239] This building was commenced in 1654 after the plans of Antonio Corradi, but was only completed by Baptista G Ghiro. It has an exterior 540 × 475 ft. The structure was begun in 1746 by the architect Orazio Turatto, but was never completed. An atrium surrounded by columns lies before the church of the institution; two columnar courts are arranged at the right and left of the same, that are adjoined by workrooms, dormitories and refectories with their accessories.

450. Milan and Naples.

For the same purpose was built in 1759 in Milan the House di Lavoro by the architect Crocee, and by Fuga in 1751 the Reclusio or Seraglio in Naples.

684 g. Prisons.

451. Prisons in Rome and Venice.

The endurance of loss of freedom for definite times is a m measure, that only belongs to the modern period and came in during the second half of the 16 th century, indeed proceeding from England, Holland and the German North. Innocent X b built in Rome the Prison known as Carceri Nuovi for the separate confinement of young vagabonds and the like in the years 1644-1655, and Clement XI erected at the same place in 1704 a so-called House of Correction.

452. Prisons for isolated Confinement.

But already earlier the republic of Venice had built in the Carceri or Prison Criminali a prison with small separate cells after the designs of Antonio da Ponte (1589), which as a pri-

prison for lesser criminals is still in use, and of which John Howard said in 1780 in his book on prisons, that it was the strongest that he had ever seen, and that no fever and no notable disorder was found therein. And Thomaso Temenza writes in the biography of da Ponte, that in all Europe was not such a commodious, strong and splendidly constructed prison. It is built of Istrian limestone, has small and wide windows with doubled iron gratings, and receives 400 prisoners, exclusive of the unhealthy cells, that have no light and ventilation.

665

It is worthy of note, that the cells are not placed next t the external walls, but that a narrow passage extends there, from which alone one passes into the cells. Any communication with the external world, such as is always possible in our modern cellular prisons, even with the elevated positions of their windows, appears to be excluded here (Fig. 623). This prison was connected with Palace Doge by the Bridge of Signs erected (1595-1605) by Antonio Contini. Its peculiarly characteristic architecture has become typical for the prison construction until our time, though certainly generally with the omission of the rusticated pilasters (Fig. 624). [240]

Note 240. I may not omit to mention, that the provision of a passage next the exterior of the prison was likewise made in S. Petersburg, and then by me in the great Prison in Carlsruhe.

h. Granaries, Exchanges, Market Halls and Porticos.

458. Granaries.

Granaries were already in use in antiquity. [241] They maintained themselves in the middle ages and also in the time of the Renaissance in the great emporiums of commerce. In Florence was built on the site of S. Michele in Orto in 1284 an open grain hall, wherein only the lower story served for church purposes, while the upper rooms were used as granaries u until the middle of the 16 th century. This structure did n not remain unaffected by Renaissance art, when Donatello (1418), Verrocchio (1483) and Giovanni da Bologna adorned it by statues.

Note 241. See Part II, Vol. 2 (Figs. 716, 717), 2 nd edit- of this Handbuch.

To Galeazzo Alessi is attributed such a utility building in Genoa (162_), whose plan and section are reproduced in Figs.

625 and 626.[242] Four five story storehouses are connected by a common vestibule and form a stately and simple whole, that 676 still does not lack the ornamentation of the facade surfaces by pilasters. Nowhere is expressed the ordinary utility!

Note 242. From Gouthier.

454. Exchanges.

To these storehouses are added the exchanges and market halls, where produce and wares are sold and were brought for retail traffic.

As the finest example of an exchange may be mentioned that built by Alessi in Genoa, which was commenced in 1570 and c completed in 1596. According to the plan in Fig. 627, a room in a single aisle, which received light on three sides through arches and windows, only having a closed wall on one side. The exterior has dignified proportions, the beautiful details peculiar to Alessi and monolithic white marble columns; but 677 the interior with its plane volute ceiling of wooden trunks with plastering on reeds has a tasteless effect (Fig. 157). The framework of the roof in round logs has been already described. The interior lacks all visible ties; therefore with the light and perforated substructure, everything is no longer plumb; yet this has already been so for 300 years!

455. Mints.

The small states, republics and also many larger cities had the right of coinage, stamped money, and frequently provided separate buildings for this work. Thus for example, the republic and city of Venice erected a special palace structure beside the old Library of S. Marco for the purpose, of earnest and simple appearance in a monumental style (Fig. 628).

456. Market Halls.

As an example of a market hall may well serve the so-called Mercato Nuovo in Florence, whose plan is given in Fig. 629. 678 Twenty sandstone columns support the ceiling composed of 12 vaults. The design acquires a firm support by 4 strong angle piers and 4 intermediate piers at the ends. The former are animated by niches, like the piers of the Uffizi porticos; l like those they support modern statues of famous Florentines. The hall is a very successful work of Bernardo Tasso; the bronze boar is an excellent imitation of the antique marble boar of Tacca in the Uffizi Gallery. A similar Hall for the same pur-

purpose is also in Pisa beside the Palace del Comune, is now called Loggia dei Banchi, and was built by Bernardo Buontalenti in 1905.

457. Loggias.

Buildings of a special kind for which the starting point w was indeed given by the Loggia dei Lanzi in Florence, are the open vaulted loggias, that were common in the 15 th century; therein on solemn occasions the guilds or certain families w were accustomed to gather and receive visits.

The great model -- the Loggia dei Lanzi --, that in spite of its medaeval forms already shows the spirit of the coming Renaissance, was originally intended as a Loggia dei Signori and as the scene of solemn acts before the people, and it only later became the place for the German mercenaries employed by the Grand Duke Cosimo I. The building was decided on in 1356 after the designs of Orcagna, but was only built in 1376, when Benci di Cione and Simone di Francesco Talenti are mentioned as builders. Besides this, Florence possessed in 1475 more than 20 such loggias -- here for families.

In Siena after the Loggia dei Lanzi in 1417 was built with but a single arch the Loggia di Papa, the Loggia still half Gothic in its lower part at the Casino de' Nobili, seat of t the commerce court, intended for the Piccolomini family in spite of its dedicatory inscription. This appears as a vaulted arched hall on Corinthian columns with plain archivolt members, transverse segmental arches, plain and tasteless superstructure above the arch, with a single line of half effaced dedicatory inscription, a work of Antonio Federighi.[243]

Note 243. A drawing of the Loggia del Papa is found in von Geymüller, Pl. 2. -- In Müntz' La Renaissance en France et en Italie, Paris, 1885, p. 305, the Loggia at Casino de' Nobili is given as Loggia del Papa and as built by Federighi -- o r rather great mistake for the actual Papal Loggia !

Still further may be mentioned, even if not entirely belonging here, the Loggia del Grano in Florence built by Giulio P Parigi in 1619, and that recalling the works of Brunellesco, 689 the Loggia di S. Paolo located on Place S. Maria Novella,[244] with its geometrical sgraffito drawings and terra cotta medallions, its superstructure and widely projecting rafter cornices; then in Monte S. Savino the Loggia del Mercato built by

Antonio da Sangallo the Elder, a hall with 5 arches and architrave blocks over the Corinthian capitals, with a crowning main dentil cornice, and the attic above this furnished with horizontal windows having rounded sides. [245]

Note 244. See von Geymüller, Pl. 21.

Note 24 . See the same, Pl. 18 a.

i. State Workshops, Docks, Magazines, Arsenals, Inns and Baths.

453. State Workshops.

For the preparation of war materials were founded special workshops in Italy already in the 12 th century, that indeed were all more or less utility structures, and from which the Renaissance period also did not depart. But for storing this material were required strong and durable buildings, just as judged necessary in antique times as well.

Designs, that can still afford to us conclusions on the execution of such problems from the time of the Renaissance, m must be those in Venice, which from 1104 until today have not yet ceased, and which were especially extended from the 14 th to the 19 th centuries. The arsenal and administration buildings, furnished with towers and walls crowned by battlements, enclosed 16,000 workmen in the best period of the Renaissance.

Walls and towers of dark red arise, trimmed with white limestone; to the domain enclosed by them leads the beautiful portal of white marble (1460), crowned by the arms of the republic, and which is preceded by a small Place, decorated by marble statues and surrounded by metal grilles (Fig. 630). The four famous lions, brought from Piraeus in 1687, are placed at right and left of the portal as mighty evidences of the v victories of the republic; at the same time they recall the fatal destruction of the Parthenon, the greatest work of Hellenic architecture. [246]

Note 246. We shall not forget here, that the second half of the 1. th century became fatal to those most important structures of all times; to the pantheon by robbery and the addition of the so-called ears of Bernini (what barbarians never did, that did the Barberini), to the Parthenon, blown into the air by a bomb from an Oldenburg battery, and to the Castle of Heidelberg, that the French under Meloc deprived of its fortifications and roofs -- the chief representatives of Gre-

Grecian, Roman and of German-Italian Renaissance art, children of the same mother!

Another example in Venice, perhaps more interesting in its way, since it fulfils another purpose besides that of a covered entrance portal, for showing the actual direction of the wind, is the entrance to the Dogana di Mare. On the roof of the substructure like a tower rises a bold pedestal, that receives kneeling atlantes bearing a gilded sphere, on which s stands a small rotating nude female figure, holding in its h hands a stretched sail as a wind vane, as the most monumental and beautiful motive of a weather vane. Notable is also the transformation of the antique Doric frieze (Fig. 681). The original structure was erected in 1682 after the drawings of G. Benoni, "noble and ably," as the illustration shows.

459. Inns and Places for Enjoyment.

In regard to inns and places for enjoyment, we can only re-
690 fer to the written evidences given by Burckhardt, since we a
691 are unable to add anything tangible. Pope Nicholas V (1447-1455) must have erected at the Baths of Viterbo hospitals with princely equipment, great beauty and convenience. Certain inns and taverns have received enthusiastic mention; the most beautiful and largest inn before Gate S. Gallo at Florence, much frequented by artisans on festal days, was destroyed in 1529 by war. Buildings for the purpose of pleasure of the people were chiefly temporary structures, as still today.

On the appearance of the bath structures of Viterbo, nothing further is stated, and we have no tangible evidence of t those at other places. The recently preceding centuries offered indeed little or nothing of importance; the swimming pool in the open air and the plunge bath in wooden tanks or basins of masonry. Sweat baths -- hot air and steam baths -- again
692 came into use in the 13 th century, and in the middle ages w was added thereto the preference for mineral baths.

460. Public Bathrooms.

Public bathrooms in the 1- th century are everywhere mentioned in the larger cities on this side of the Alps, and according to this, the existence of similar arrangements can also be presumed in Italy.

Their arrangement consisted of dressing and bathing rooms. At the health resort in Baden in Switzerland in 1417 are men-

mentioned inns, some of which had special arrangements for b bathing with great pools. In the 15 th century baths in cities again disappeared. If it is then stated that Italy, France and Germany had splendidly equipped bathrooms, then these statements scarcely relate to public establishments in the s sense of the Roman Imperial Baths, or of the modern cellular and covered swimming pools with the addition of sweating baths, and what Filarete says on baths in his Treatise is brief:-- "The bath house is arranged as follows. One first enters an anteroom with benches, adjoined by a sweat bath, as well as four bathrooms, in which one obtains hot and cold water as required. On the court enclosed by porticos lie the rooms with the heating apparatus and water reservoirs, from which pipes lead into the baths; further is a fountain and the division for women, which is arranged similarly to that for men. In the upper story is found the business office for conducting the business of the society. "

We have evidence that bathing arrangements were not lacking in the dwellings of the great. I recall here the colored representation of the bath of Cardinal Biblena in the Vatican, painted by Raphael (See L. Gruner, Specimens of Ornamental A Art, 1850), and a beautiful bathroom in Palace Pitti in Florence belonging to a somewhat later period, further House della Grotta in Mantua, the loveliest casino with enclosed garden, a portico, anteroom, and a grotto with cool water.

Reminiscences on German soil are presented by the baths in House Fugger in Augsburg, the little so-called bath pavilion in the Nymphenberg garden near Munich, the marble Bath in Cassel, the charming bath pavilion in the Palace garden at Schwetzingen, and other places.

K. Public Fountains.

461. Public Fountains.

Scarcely another country of Europe than Italy, provides such an abundance of good drinking water, that the cultured men of the Old World utilized for their purposes, and no city of the world has such quantities of also good ornamental waters as the eternal Rome. Already the old imperial city took pleasure in the design of waterworks and monumental fountains of all kinds (meta sudans, etc.); but the Rome of the Popes was scarcely inferior in this respect. No public Place, no

villa, no court nor small garden are to be found in or around Rome without the element of water in more or less artistic treatment. And where nature does not refuse (for example in Venice, where only cistern water is to be had;:but for this beautiful cistern openings are to be noted), no city and no village remains behind, and especially none of those costly
693 country seats, which without the animation of the jetting water, basins and cascades, would not lack its magical charm.

462. Isolated Fountains.

The fountains occur almost entirely as art works of high r rank, and are either formed as detached fountains with a great collecting basin, or consist of several of these arranged successively above each other, conceived as purely architectural and decorated accordingly, or the structure is elevated on a higher base with the aid of figure ornament. The figures consist of allegorical male, female, youthful and children's forms, of sea animals, of frequently fanciful kinds and shapes (dragons, seahorses, dolphins and the like, tritons, nymphs sea-maidens with bodies of fishes, these occurring either only as an addition to the architecture, or they form t the principal part of the work, and the architecture being m merely its enclosure. Bronze, marble, granite and other kinds of stone, either separately or combined, are the materials composing the fountains.

463. Fountains treated as purely architectural.

As perfectly beautiful examples of pure architectural treatment may pass the two fountains 46 ft. high on Place S. Peter in Rome (Fig. 632) with their strikingly arranged and effective handling of the water, one of which was designed by Maderna. The "heaped mushroom" that first receives the falling water guides it not much beyond the bowl projecting beyond itself, that rests on a strongly constructed support, while its water and that falling from the lofty jet are received in a great collecting basin, whose bold enclosure lies on the adjoining pavement of the street. The mighty Place with its massive architecture here settled the fountain question in nowise, other than with entirely architectural means.

464. Fountains with Statues.

A small public Place, like that of the Signoria in Florence, must employ other means, and accept the aid of sculpture; the

maker of the one there, named after him the "Ammanati Founta-
694 in", did this in such a rich manner, that in this example the combination with architecture is almost rejected. Other conditions, different modes of expression; with this principle the Renaissance always understood how to satisfy itself with good fortune and skill!

465. Ammanati Fountain.

The great marble basin, rising moderately above the pavement of the street, as on the Place S. Peter, forms the only i important architectural portion, at its centre rising the great Neptune (Il Biancone) of white marble, drawn by a team of seahorses, while on the other margin of the basin are arranged four sea deities of bronze, each accompanied by two tritoons (school of Giovanni di Bologna, 1575; Fig. 633). In contrast to the Roman fountains, the water is very scanty and n never plays, with regard to the preservation of the marble s statues.

A still richer part is played by the stairway element at t the great fountain designs in Messina and Palermo entirely constructed of white marble, which are exhibited on the Place near the Cathedral and on the small Place before the Palace of the Senators. Montorsoli was the artist of the Fountain in Messina (1547-1551), 26.3 ft. in height; two Florentines, Camilliani and Vagherino, created that in Palermo (1550), which was originally intended for the garden of a villa. (Figs. 634, 635).

466. Tartarughe Fountain.

Modest in contrast to this massing of figures, but charming in effect, must be termed the so-called Tartarughe Fountain
695 in Rome (Fig. 636), somewhat concealed on a small Place, a w work of Taddeo Landini (1585). Four nude youths in bronze e
696 each raise a tortoise above the edge of a bowl supported by
697 a great baluster, standing on the heads of dolphins, that again spurt jets of water into shells placed before them.

467. Triton Fountains.

Gregory XIII again had erected a larger composition, yet t too small for the magnitude of the Place, after the drawings of Giacomo della Porta; it consists of two concentric basins with four water-throwing tritons, masks and a fifth colossal triton riding on a dolphin spurting water, holding him by the

tail. With better effect on the same Place Navona is the more picturesquely conceived Obelisk Fountain, that Innocent X had erected in red granite by Bernini. The obelisk stands on a high and hollowed mass, on whose projections sit four colossal figures representing the rivers (Ganges, Danube, Nile a and La Plata) executed in white marble. The Nile veils its head, so that it must not always look upon the church facade of S. Agnes, built by his rival, Borromini. The jest and revenge of an artist! But entirely skilful and thrilling as a composition. (Fig. 637).

More simply than on Place Navona has Bernini solved his problem at the Triton Fountain, where four dolphins bear a shell, from which rises a blowing triton -- a piece of original fancy, conceived rather as industrial art than as monumental.[247]

Note 247. See Letarouilly. Vol. 3. Pl. 2:86

468. Neptune Fountain in Bologna.

As one of the most effective works in this domain indeed m must be termed the Neptune Fountain in Bologna, a magnificent work of the late Renaissance, where architecture and sculpture contend for the palm (Fig. 638); the former is attributed to Tomasso Laurati of Palermo, the Neptune 8.2 ft. high and of bronze with the cupids, to Giovanni da Bologna (1564-1566).

To give an estimate of all the small and great undertakings of the kind would lead too far, especially if the fountains in the villa designs were yet included, for example in the B Boboli gardens in Florence, in Poggio a Cajana, in Petraja n near Florence, in Villa Borghese in Rome, in Naples and many other places, the fountains in the cloisters and their gardens, together with draw wells, like that between court and garden of the Jesuit Church at Rome, in the cloister courts of Monte Cassino and of S. Spirito at Rome, and a hundred other places.

Two small fountains shown may yet be considered, the pretty arrangement beneath the stairway in the passage to the court in Palace Vecchio at Florence (Fig. 639), and on the stairway to the Capitol in Rome, but which is no longer active as sketched by me in 1866 (Fig. 640). A later time has condemned the two Egyptian lions to inactivity, and has removed the use for water.

469. Architectural Wall Fountains.

469. Architectural Wall Fountains.

Instead of detached fountains great showpieces appear as a attached to walls of houses, treated after the manner of the antique triumphal arches. The entire architectural structure is there repeated at a great scale; but it experiences an enrichment in having the middle opening and the side passages treated as niches with complete statues, as shown on the Aqua Felice on Place Termini, built by Domenico Fontana in 1587 u under Sixtus V in a scarcely happy manner.

470. Fountain of Trevi.

But more beautifully shown in the formerly esteemed Fountain Trevi (Fig. 641).[248] The grand ornamental structure rises on an artificially cut travertine rock, over which the water falls like a small cascade.into the great collecting basin -- 699 a view in moonlight summer nights, that leaves behind an unfailing impression and a magical remembrance.

With the use of a drawing of Bernini was the work commenced in 1735 by Niccolo Salvi, but only completed in 1762.

471. Fountain Paola.

Conceived as an open loggia is the allied structure at the acqua Paola, supplying the greatest abundance of water, which was erected in 1612 by Giovanni Fontana under Paul V. Above the outlets of the stream of water into a collecting basin a almost 92 ft. wide rises a triple arched loggia between two angle pavilions, which is crowned by a great attic adorned by hermes, and bearing a massive inscription tablet with added shield of arms. The ground plan is given in Fig. 642.

As an isolated fountain on a larger public Place, whose entire design is made mediaeval must still be made prominent t the Fountain of Vignola on account of its beautiful proportions and its simple details. In the stepped base are inserted 700 large drinking places with little channels for water; above rises a great collecting basin and over this is a second smaller circular bowl on a compressed candelabra-like support,beset by lions' heads, from which again rises a smaller bowl w with jets. (Fig. 643). A skilful architect has here executed a perfect work with small means. He scorned the accessories, 701 with which a Trentine master was extremely lavish. (Fig. 644). The programme was indeed the same for both; to construct the design of a fountain with basins on an open Place. Comparison

of the two solutions certainly gives the answer to the question, who has chosen the better part here. Finally is also t
702 the example of an isolated fountain in a court, that owes its basal idea to an Early Christian baptistery in Rome. (See S. Agnese and S. Giovanni in Rome, as well as S. Maria Maggiore near Nocera in Calabria and others). Eight marble columns s support an octagonal marble entablature and enclose an octagonal area, at the centre of which rises a fountain with bowls, erected in the Penitentiario near Viterbo (Fig. 645). Likewise one of ancient models, that has not yet lost its attraction, and celebrated its origin on occasion by the sound of bells.

703 1. Monuments.

472. Equestrian Statues.

The exhibition of public monuments in the form of pedestrian and equestrian statues, executed in hard stone or in metal, antiquity and especially the late Roman imperial period made use

473. Equestrian Statue of Gattamelata in Padua.

The custom was renewed in the 15 th century, and it was the great master Donatello, who since antiquity in Italy again e executed the first colossal equestrian statue of bronze in honor of the commander of the army of Venice, Gattamelata in Padua (1438-1441). Casting in bronze was completed in 1453, and it stands on an architecturally simple base of stone, ornamented by flat figure reliefs. (Fig. 646).

474. Equestrian Statue of Colleoni in Venice.

A second monument was erected some years later by the same republic of Venice, honoring its general Bartolommeo Colleoni (died 1475), which Andrea Verrocchio (died 1488) modeled, and that was cast after his death by Alessandro Leopardi, by whom was also the high marble pedestal (1480-1495). Burckhardt terms it the grandest equestrian monument of the world; "Horse and rider never again were conceived in one gust, so individually and powerfully executed as here". (Fig. 647). And the decision rendered in the year 1860 has also for myself at least in the year 1913 always its weight in the face of the erroneous productions of equestrian statues. The statue was f formerly entirely gilded, after the practice in the antique period, vestiges of which are visible today on the belly of the horse and on protected places of the armor. Was its effect

and more beautiful in the gleam of gold? The question may be answered differently according to the taste of the period. Whether Verrocchio would have allowed the pedestal in the conception of Leopardi as rather a work of art industry, must be doubted (Fig. 648).

475. Equestrian Statues of Ferdinand I and of Cosimo I in Florence.

These magnificent works were followed by two equestrian statues by Giovanni da Bologna, that of the Grand Duke Ferdinand I on Place della S. Annunziata, which was entirely completed in the year 1608, and is designated as the last, though not the best work of the artist. The other is located on Place della Signoria in Florence and represents Cosimo I (1594), and by many is termed a remarkable work. It stands on a marble pedestal, that is adorned by bronze cartouches.

476. Characteristics of the Equestrian Statues.

Rest and motion for hores and rider are the elements, which come into consideration in the composition of equestrian statues, and then also the fact, whether they should be executed in relief or as detached figures. Both kinds were in use at all times and among all cultured nations. Absolute repose a and wild movement form the limits, whose middle stage is:-- the horse with slow movement forward, a slight movement of t the rider's hand, but where the horse must not have the character of a draft animal. There are shown horses standing quietly on all four feet, mostly quiet animals in Greek and Roman art, which are held in repose by the bridle and the rider., SParthenon); in the art of the middle ages and of the early Renaissance, these standing animals bear a vigorous rider, s sitting upright in the saddle with outstretched legs (Verona and Milan), galloping and rearing in processions, hunting and battle scenes (Parthenon frieze, sarcophagus of Alexander), sepulchral monuments (Tomb of Dexileos at Athens), and on memorial columns of late Roman art, with heroic movement of the rider. The slowly walking horse with quiet rider remains the favorite motive for the equestrian statues of Roman and Renaissance art. The mode of its pose was made dependent on its size and its pedestal, and what was further considered was t the mode of advance of the horse, the position of the ears ((the ears forward or backward toward the rider), the trimming

of the tail and mane of the animal (out short, natural growth, braided ends, and the like). For quietly standing horses, t the natural positions of the fore and hind legs were also retained in the sculptured representation. Standing compactly or loosely, kneeling and the like were avoided as offenses a against sound nature and good taste.

477. Mode of Advance.

A greater part with the moving horse was played by the mode of progress, and connected therewith -- a purely technical q question -- was the distribution of the overlying masses of bronze or dense stone on three or four supports. This must be weighed and solved, which was more or less successful, according to the skill of the artist and of the bronze founder.

With the assumption of three points of support, the art work was more free and animated, as Verrocchio has shown on his equestrian Statue of Colleoni, while Donatelly sought and obtained a fourth point of support by placing a cannon ball under the raised foreleg of the horse.

In the advance of the horse we distinguish between natural and artificial, regular and defective. To the natural belong the step and the gallop, when the "step" is adapted as the s slowest and safest advance, when one hears four hoof beats, the two extremities on the same side ane moved forward, while the diagonal legs support." (Fig. 648; step). But besides t this also is to be noted the pace, where both legs on the same side are raised, and the centre of gravity is moved alternately to right and left, in a sense swinging. It is found as a natural movement in many horses of the steppes, but is also taught. (See Meyer's Great Conversations Lexikon. 6 th edition. Pferd. IV Gangarten, Fig. 1, Fig. 1, schritt, Fig. 2, passgang, also Fig. 648). Therefore the horse can be assumed to be a pacer or as diagonally moving, since both are natural, a matter of custom or training. On the great Panathenean frieze of the external cell wall of the Parthenon, the horses of the riders are sometimes pacers or steppers (Fig. 650 a shows the former). The famous stepping bronze horse, taken from a quadriga of the late antique (see W. Rolfe's Berühmte Kunststätten, No. 29, Neapel I) appears as a diagonal stepper; the same peculiarity is possessed by the horse of t the Marcus Aurelius in Rome (Fig. 651). According to a sketch

by Lionardo da Vinci of his horse is also prescribed likewise, (Book of Painting, Vienna, 1882, Vol. 1, p. 290), while his countrymen Verrocchio and Donatello have executed horses as p pacers in their great equestrian statues in Venice and Padua. (Fig. 652 a). The Athenian riding horses have bristling manes trimmed short, that of Colleoni has a hanging and artistically arranged mane with ears turned backward. It trusted its rider just as little as the men traveling with the rider.

Note 249. It is interesting, that in the Italian examples mentioned, the greatest projections of horse and rider do not exceed the circumference of a circumscribed circle (Figs. 652 a, b).

Likewise the Byzantine bronze and originally gilded horses on the facade of the Church S. Marco in Venice, which formerly Doge Dandolo brought away from Constantinople (1201) as t tokens of victory, that originally were portions of a quadriga on the Triumphal Arch of Nero, then taken to Paris by Napoleon Buonaparte in 1797, and the Emperor Francis I returned to Venice in 1815, are diagonal steppers. (See Fig. 650 a after the great drawing by Camille Boito in the magnificent work; La Basilica di S. Marco. Venice. 1888. Photogravure 282. They belong with the best, that antique Roman bronze sculpture has produced. The beautiful bronze equestrian statue of Nonio B Balbo in Pompeii exhibits the horse as a diagonal stepper. (See Fig. 816 in Durm's "Baukunst der Römer. 2 nd edition. P Part II. Vol. 2 of this Handbook").

An equestrian monument of the first rank on Italian soil, within the bounds of Antique and of Renaissance art, was created by united Italy for its great King Victor Emanuel in eternal Rome, that cannot and should not be passed ower in this place. In the vicinity of the Roman Forum and the Forum of Trajan, on the longitudinal axis of the Corso and terminating it, rises a colossal structure of dense limestone with a mighty arrangement of steps and on a high terrace; the gilded bronze equestrian statue on a pedestal of white stone adorned by richly significant sculptures, for which a slightly curved exedra supported by 16 columns, with temple-like porticos and columns of victory, serves as a background, and whose pylons will yet bear gilded quadrigas with goddesses of victory. (See plan and view of the entire colossal work, as well as t

the partial views photographed by Moscioni in Figs. 653, 654, 655). The horse of the royal rider is a pacer after the models of Donatello and Verrocchio. Horse and rider are quiet a and dignified in pose. The best stone in Italy was sought as the material, in order to ensure an eternal duration to the monument. 250

Note 250. By the best informed circles information was given to me, by the intervention of the architect Alfonso Rubbiani in Bologna, frequently mentioned here, by architects Pio Piacentini and Collamarini in Rome, that follows here with t the expression of my best thanks. The stone with which the monument is constructed, is a dense limestone -- stone of Botticino and of Mazzano --, so called from the quarries of small villages near Brescia. Both kinds of stone are not visibly different in quality. The columns on which stand the goddesses of victory are monoliths of Porto Santo, a kind of stone from the quarries of Grosseto, which the ancient Romans employed under the name of Claudio. With this was constructed the enclosure of the walled up entrance doorway at the building of the Church S. Peter in Rome, which is usually opened in the jubilee year, whence the name of Porto Santo (sacred portal). The pavement of the great terrace is executed in white and g gray stones in different designs. The white is throughout t the Botticino or the Mazzano, the gray is named after its quarry at Tobolo (near Brescia), and is equally as good as the Bottocino. The floors in the resting places of the propyleas and of the great portico are of variegated sorts of marble, in great part of African marble, Egyptian granite, serpentine, verde antique, porphyry, pavonazetto, yellow antique, etc. Among the columns for the victories are also some of modern Pavonazetto from Carrara.

709 The creator of the monument is Count Giuseppe Sacconi, to whom, like the architect of the Gallery Victor Emanuel in Milan, fate did not permit life until the completion of his work. According to the official statement, the amount assigned for
710 the structure was 37 million lire ($7,400,000: the authorized
711 sum), of which 30 millions ($6,000,000 have been expended. (See Monumenti d'Italia. No. 13. Roma. Frank & Co.).

An abundance of historical memorials press upon the observer here. What a view of the works of long past times are op-

opened to us from the oylons and the great portico! At the rear are the ruins of the Roman Forum, on the right rises the Tower of Nero and the Column of Trajan above the roofs of the palaces of the city and the domes of Christian churches, in the middle being the greatest monumental domed structure of the world, S. Peter, and on the left appears the Statue of Garibaldi on the Janiculum! The mighty architectural view, animated by a festive and harmonious multitude of men, who a appear to be elevated by pride and self-confidence, and wonderingly gaze on the work. Italy will make itself -- and has made itself!

Thirty million lire have been spent already, and yet all is not complete, but it is question of time, it will be so. Whoever will learn the contents of the mightiest monument of modern time, must pass through its plan and add in spirit whatever is incomplete. Only then will he be filled and overpowered by the grandeur of the cast, and the Italian people are grateful for the offering, which they have made not only to the national honor, but also to their national art, the revived and undying Renaissance. (See the general view, Fig. 654).

478. Pedestal.

The position of the equestrian statue on a disproportionately high pedestal, which is common to the two monuments of C Colleoni and of Gattamalata, may be dangerous to the effect of the work in general. One looks too much from below, especially as the Place for its exhibition is limited, as for example in Venice, where men desired to lessen the difficulty by bringing forward the church facade near it at one side. Perhaps also another reason contributed; men at church festivals would not also build on the small Place. The near wall of the church is not the best accessory. I do not believe t that artistic reasons were determinative here, as so frequently assumed.

Michelangelo was more careful and fond of correct proportion for the placing, the form and height of his pedestal for the antique equestrian statue of Marcus Aurelius. Thus one may wonder at the group as a whole, and the belly of the horse d does not play the chief part there. In the form treatment of the pedestal, the great Florentine found the correct ideas, in contrast to that of Colleoni, too much conceived as a work

of the art industries. Donatello came nearer with his simple and severe architecture of the pedestal in Padua.

479. Statues in Relief.

The question of the pedestal vanishes as soon as recourse was had to representations in relief, as may still be seen a after the mediaeval model in Milan, at the equestrian statue of the Podesta Oldrado da Tresseno on Place della Ragione, on the portion of the wall surface between the arcades and the row of windows of the second story. (See Itilàa Artistica. Milano. I. No. 35, p. 37). The mediaeval horse is here a pacer. (Before 1233).

480. Placing the Monumental Figure within a Niche or a Shrine.

A beautiful realization of this motive from the time of the early Renaissance is the Monument of S. Victor on horseback in armor and with a waving standard, on the tower of the Basilica of the saint in Locarno. (Fig. 656; see R. Rahn, Kunst und Wanderstudien in Switzerland. Zürichs 1888).

On mediaeval grounds is also based the Tomb of Barnabo Visconti, conceived as an equestrian statue (Fig. 657 from Italia Artistica, No. 25), in elevation recalling that of the Scaliger in Verona. On a sarcophagus supported by columns and piers like Corinthian, richly adorned by representations in relief, rises the equestrian statue of Visconti, sitting strongly and stiffly in the saddle on a quietly standing horse, with legs extending straight out, but without a helmet. Supporting the body of the horse stand two female figures, representing justice and courage, recalling the virtues of the p prince. Portions of the monument were gilded. The design a and execution is attributed to the Campionese Bonino. (See I Italia Artistica. Milano. I. p. 72, 73). Another is in the Colleoni Chapel at Bergamo, and a counterpart in worldly fame is in the theatre hall of the Palace at Parma.

The representations of figures on the bases of monuments m mentioned are limited to reliefs; as larger additions they e express themselves on the interesting marble statue of the G Grand Duke Ferdinand I in Livorno, where four chained Moors, cast in bronze, are attached to the pedestal as most expressive sculptured ornamentation of the substructure, which in t this form represents more intimate relations between it and

the statue. It is a work of Giovanni dell' Opera, whose principal figure is far excelled by the four Turkish slaves (the four Moors) of Pietro Tacca. (Fig. 658).

Everywhere that in the treatment of the pedestal a monumental simplicity is given preference over a more art-industrial development, the problem is solved in a higher artistic way, and results in being permanently beautiful.

431. Standing and Seated Isolated Figures.

The sketch of Montegna for a statue of Virgil (now in Museum of the Louvre), on a low pedestal animated by two cupids, must perhaps be the oldest project in the Renaissance period for an isolated standing figure. As an example for a seated figure is to be seen the Monument, chiseled from white marble, of Giovanni delle Bande Nera (died 1526) on Place S. Lorenzo in Florence, executed by Baccio Bondinelli (Fig. 659), on a broad and richly subdivided marble pedestal, imitating the architecture of Leopardi on the Colleoni Monument in Venice.

As a further example of the monument with a seated figure in a protecting shrine, richly treated architecturally, is t the charming Pliny monument of Tomaso Rodari on the gable facade of the Cathedral of Como. (Fig. 660). [251]

Note 251. From Zeitschrift für Bildende Künste.

482. Antique Obelisk as Decoration of a Place.

With another monumental ornament of a place, the Roman Popes busied themselves by erecting again the ancient Egyptian obelisks.

The Place S. Peter, the Places at the Lateran, at S. Maggiore, etc., are thus furnished with such. On Place del Popolo and on Place Navona tower into the air these memorials of the victory of ancient Rome over Egypt, now tokens of the victory of Christianity over Paganism, now crowned by bronze crosses. The largest of these, before the Lateran, taken from Egyptian Thebes, was once erected in the Circus Maximus. Wrought in red granite, it is indeed the largest monolith of the world with its 115.8 ft. It lay there broken in three pieces (Fig. 661), and there was also necessary besides its re-erection, also joining it into a whole. Domenico Fontana, who so succesfully carried out the setting f an obelisk on Place S. Peter, was likewise entrusted by Sixtus V with this purely technical problem, which he solved with equal skill and success

in August, 1588. The obelisk has sides 9.55 ft. long at the base and 5.94 ft. at top, and corresponding to this mass was a foundation 11.54 ft. square was placed at a depth of 27.8 ft, entirely laid with travertine ashlars. The three pieces wibe connected together ingeniously by dowells in form of do double dovetails. The bearing surfaces were first accurately dressed, then the grooves for the dovetails were cut in form
7/6 of a cross, and this was itself made of four pieces and was inserted with lead jointing (Fig. 662). The total height of the work from the ground to the apex amounts to 163.72 ft., and its weight is 541.73 tons.

483. Obelisks of the Renaissance.

The Place S. Maria Novella was arranged on the former Circus (1563), and was further decorated by two marble obelisks from the time of 1608, resting on a pedestal with bronze crabs, and ornamented by the lilies of Florence at the apex.

484. Antique Spiral Columns.

Of the effective means of expression for personifying the great deeds of a monarch, preferred by the antique Roman in the imperial period, the spiral column with a statue of the ruler, the Renaissance made no use. The petty rulers could not justify the idea, and the republics recognized nothing to begin with.

485. Triumphal Arches.

It was similar with triumphal arches. The sole architecturally grand conception of this kind was erected by Alfonso I of Arragon in Naples, and decorated by sculptures (see Fig. 13 and Fig. 663 after its restoration); the Triumphal Arch of Scaletta in Vicenza opens the way from the station toward Monte Berico, and bears above the main cornice the stone statue of the lion of Venice, right and left of which are represented
7/7 two standing saints. Its title is displaced, its form expression and its proportions suggest Palladio as the designing a architect.

The Arch della Pace or Sempione was built for several million lire by Cagnola in 1806 in Milan, at the command of Napoleon I, and the Triumphal Arch on Place Cavour in Florence w was erected in memory of the entry of Grand Duke Francis II. (1739). Both exhibit no new ideas whatever, and they adhere to the similar Roman models.

In the Cicerone of J. Burckhardt (5 th edition, p. 303), t the Florentine triumphal arch mentioned is termed a work meriting consideration, and is designated as Arch S. Gallo before the gate of the same name. Maria Theresa had it erected in honor of her consort, then grand Duke Francis.

486. Masts for Flags.

As a decoration of a Place may yet be mentioned flag masts, so far as they received an artistic form, as the case on Place S. Marco in Venice. Modeled by Alessandro Leopardi (1505), there rise from richly ornamented bronze pedestals the wooden masts painted red, with their waving streamers, thus forming a perfected art work (Fig. 664).

487. Columns for Statues.

Supporting columns to receive statues of certain saints (Maria columns), or as memorials of victory, also for receiving tokens of dignity and of possession, were frequently erected in the Renaissance period. The republic of Venice proceeded to place such on public places in all cities coming into its possession. On the Piazetta near Palace Doge rose two columns 278 of Syrian granite, certainly first erected in 1810, which support the bronze winged lion of S. Mark and the bronze statue of the ancient protecting patron of Venice, S. Theodore, standing on a crocodile. (1329).

From the Venetian period also date the two columns on the Place dei Signori in Vicenza, one of which bears the lion of S. Mark, as likewise the Corinthian column before the Loggia del Consiglio in Padua, which consists of a pedestal, a shaft of an antique column and a capital like Corinthian, that has also received the lion of S. Marco. On Place d'Erbe in Verona stands a marble column with the Venetian lion, from the d date of 1524. The lion was renewed in 1886. Likewise Ravenna exhibits two Venetian columns on its Place. On Place S. Maria Maggiore in Rome, Pope Paul V (1605-1621) had erected the marble column 46.9 ft. high taken from the Basilica of M Maxentius, and adorned by the bronze figure of the Madonna. On place Tolomei in Siena stands on a column with Composite capital a wolf suckling a child.

In Naples is the column designed to receive S. Januarius (1631), another (column of S. Maria) was located on Place of the Trinity (1747), while S. Dominic had to be satisfied with

an obelisk as support (1657). Most are intermediate between obelisk and column, overloaded and without purpose, as said by W. Rolf in Vol. 2 of his good description of Naples (Berühmte Kunststätten, 1905). In Padua on Place Santo, men have been satisfied with simple crosses on columns.

The elevations of most of these columns consist of an octagonal stone base, a column shaft more or less decorated with a bell capital, on which rests a moulded cap with the statue. These forms recall the Gallo-roman columns of victory, that were often 39.4 to 45.9 ft. high, and originated in the time of 200 to 400 A. D., especially in the sequence of its parts and their form treatment. (See Durm, Baukunst der Römer. 2 nd edition. Part II, Vol. 2, p. 742 of this "Handbook").

m. City Gates and Bridges.

"Cajoling the gate invites someone within to the law;
Joyfully it leads the citizens out into free nature."
Schiller.

488. City Gates.

To mediaeval gates these words of Schiller cannot be termed properly applicable; for these occur as parts of the fortification of a city in defiant and lofty forms, as gloomy towers looking inward. Nothing inviting, nor attractive -- threatening to destroy whoever approaches with hostile intentions. The external form of the gate or rather of the gate towers, changed with the introduction of muskets and of heavier artillery; the tower was omitted; the elevated parts vanished, and as broad based structural masses appears the gate of the Renaissance, adorned by pilasters and columns, it "cajolingly invites us within."

With this principle agrees the Gate S. Pietro in Perugia (1473), built by Agostino d'Aretano di Duccio, whose upper portion unfortunately remained unfinished (Fig. 665). In equally stunted proportions the famous fortification architect Michele Sanmicheli formed his city and fortress gates in north Italy and Dalmatia, as shown by the plan and section of Gate Navona in Verona in Figs. 666 and 667, and as the outer elev-
779 ation of the beautiful Gate at Zara exhibits (Fig. 668). Not easily will such a characteristic form and treatment of details of such an earnest structure for utility be found, than is the case at the so-called Gate Stuppa in Verona and at the gate in Zara. The defensive capacity of the gateway is exter-

externally somewhat marked in the antique gates: but the interior and the plan of Gate Nuova teach us otherwise and show, that we do not have to do with an object purely ornamental.

Serlio also takes the same course in his designs for gates for a fortified city (Fig. 669), when he adopts the rusticated order on the exterior: but he is not satisfied therewith, when he adds a firing bastion above the main cornice.

In Rome are to be mentioned existing examples; the Gate del Popolo (by Vignola in 1561, the interior built in 1655 by Bernini and enlarged in 1878), the Gate Pia, begun in 1564 after Michelangelo's design, as well as Gate S. Spirito commenced by Antonio da Sangallo the Younger, etc. [252]

Note 252. See Letarouilly, p. 181 of text.

An innovation is shown by Gate Nuova in Palermo, built under Charles V by the architect Gasparo Quercia (1584), whose substructure is like a Roman triumphal arch; over this is an intermediate story with medallions, above being a loggia with five arches arranged with a terrace, from which rises a high roof with colored glazed tiles, that bears a lantern (Fig. [illegible]-A00. The upper part was destroyed by lightning, but was entirely restored in 1665.

720 489. Triumphal Gates and Arches.

Inserted between two massive defensive towers, appears the magnificent Gate of honor and triumph of Alfonso I of Arragon at the Castle Nuovo in Naples built in 1283, erected in the year 1442 in honor of his entrance into the city, a work of the Milanese architect Pietro da Martino. Further at the same place is the Gate Capuana, erected some decades later (1484) by Giulio da Majano; this is a gate building with high frieze and a high attic; "much the most beautiful gate of the Renaissance," was restored in 1535 and ornamented externally by reliefs by Giovanni da Nola.

As a detached structure in the sense of the antique triumphal arch may also be mentioned the City Gate at Padua. (Fig. 671, from Italia Artistica).

490. Bridges.

"Bridges of absolute architectural importance were first c created by the time from 1540 to 1584." [253] But antique art wrought earlier in this, and without the splendid Bridge of
721 Augustus in Rimini and others, solutions in a purely classical

sense, such as Palladio left to us, would have scarcely been possible. He gives his best in the design for a bridge with three arches with vestibules and shops, reproduced in Figs. 672, 673 from his drawings. He accompanies it with the following words:-- 254 "In my opinion the design for this bridge is very beautiful. It is suitable for one of the most monumental cities of Italy; it must lie in the midst of the city, where the river is very wide; three streets must lead over it, that are bordered by shops and great traffic." In justification of his design, he calls up the evidence of the ancients, when he says that the Bridge Elio in Rome was covered by loggias, furnished with a bronze balustrade, and was decorated by statues and other ornaments. Covered bridges were also d demanded in the 15 th century by Alberti, who likewise must have built a roof over the Bridge S. Angelo at the command of Nicholas V.

Note 253. See Burckhardt, J. Geschichte der Renaissance in Italien. Stuttgart. 1878. p. 209.

Note 254. In his Book on Architecture. Book III. Chapter XIII, p. 25.

In the gallery of the Palace at Parma is a painting (No. 283) of Fountain Mosetti (Section XVII), that gives an "ideal restoration of Castle S. Angelo and the Bridge," showing the bridge with five arches and with a portico structure, that b bears a low dome at its centre; in its way a beautiful and i interesting solution, such as Palladio may have conceived.
722 Another painting (No. 184) by Canaletto gives the Basilica in Vicenza, on the right of this being Bridge di Rialto after t the design illustrated in Fig. 674, termed a "pleasing project".

As a bridge with shops, the Bridge di Rialto in Venice (Rivo alto, 1588-1592), built by Antonio da Ponte in the place of an old wooden bridge, is a tasteless work in comparison w with the design of Palladio, which we must regard as intended for Venice, from the painting of Canaletto. The bridge is 157.2 ft. long, 72.2 ft. wide, and has a single arch of 88.6 ft. span with a rise of 24.6 ft.

By Antonio Cantino was built the Bridge of Sighs in 1595-1605, which connects the Prison with Palace Doge, and is constructed as a covered bridge with good treatment of details.

Freeing himself from the antique, Ammanati erected the

Bridge della Trinita over the Arno in Florence, an engineering and artistic work of high value. "The forms of the arches a are adapted with the freest genius to the upward inclination towards the middle," and with refined feeling for lines, instead of the hard form of the segmental arch the softer form of the oval arch is chosen for the arches.

Serlio says very little of his predecessors in bridge structures. In his Book III (p. 90) he gives drawings of four antique Roman bridges of stone:--

1. Three arches of Bridge Sisto.
2. The Bridge Milvius = Molle.
3. The Bridge S. Angelo (Elio Adriano).
4. Bridge Fabricio.

And he gives the calm explanation therefor by "so that one may understand the manner in which the ancients built their bridges." Elsewhere we find also by him:-- "In Rome are many bridges erected by the ancient Romans." The bridges mentioned are illustrated by woodcuts, as good and bad as were then usual and possible.

The landscape and the interiors of cities were not injured by them. With this reference to doubtful illustrations without other text is curiosity satisfied. On bridges outside R Rome or in other places in Italy, he gives no information.

Barbarians and Greeks were the instructors of the Romans in the domain of bridge construction; these gave instruction further to the technical guilds in the middle ages, and these a again to the masters of the Renaissance.

Wood and stone were the first materials (iron set in lead only serving as cramps), as the oldest known stone bridges in Babylon teach us. On the appearance and construction of many Roman bridges, conclusions are afforded by representations on the column of Trajan and on coins. Fortified entrance gates (bridge heads) seem to have not been excluded in them.

491. Monumental Structures for Bridges.

But we further know, that the feeling of the Roman architects for style and beauty was also required monumental structures for these passages over rivers.

492. Bridges at Kiakta and Alcantara.

At Kiakta, two columns at both ends of the bridge indicated the entrances, and at Alcantara rose a plain gateway of stone,

spanned by a semicircular arch, with no other decoration than an inscription tablet on the pier in the middle of the stream; at the Flavian Bridge at S. Chamas were erected two portals at the ends, included between two pylons subdivided by Corinthian pilasters, the gateway opening being spanned by a semicircula arch. On the main entablature stand lions carved in stone, like watchmen at the entrance (Fig. 536 in Durm's Baukunst der Etrusker und Römer. 2 nd edition. Part II, Vol. 2 of this Handbook). The same material is employed for arched
724 bridges and portals. The genuine Roman tendency also to monumental buildings, which must serve only one practical purpose, to gain some place for architectural expression, also led the masters of the Renaissance to the same procedure. It certainly was this, which inspired the master Palladio in his b bridge designs with portoco and temple facades. Mostly buildings for peace come into consideration, for friendly concerns of life, where at most one met others, and not isolated forts, which are reflected in the ideal projects and in the executed structures. Before the dilemma of being compelled to work w with two chief structural materials, the architects of the Renaissance were not placed. Supporting piers on the land a and in the stream were of bricks or stone, driveways supported by steel structures with vertical terminations by stone sham architecture, to be compelled to combine all this into an architectural work with unified effect, testified to good skill. Likewise for false knightly castles, or fortress gates as portals to bridge passages and similar jokes of theatrical art, they were spared. Only as natural defensive points, as for example were conceived and executed in its time in the c city of Prague at the entrances to the Bridge and the Altstadt, can they be allowed to be of value, thus where they have meaning and justification. Heavy in the masses, but covered by the graceful filagree ornamentation of the later Gothic on t the facade surfaces, they have the more expressive effect by the unity of the material -- of stone -- in bridge construction and their defensive tower.

725 494. Bridge Heads.

Serlio digresses to the so-called bridge portals in his Book VII "On some Gates of Cities and of Fortresses." The gate of a fortified city or for access to the castle with its drawbr-

drawbridge over the city or castle moat was indeed properly included in the domain of architectural works, but not the entrances to bridges in the open country. Here he abandoned the ancient Roman traditions, which also foresaw these. What he gives are the dimensions and numerical proportions for fortress gates, small towers and slits for elevating chains, clothed in the forms of the Tuscan or Doric style in combination with rusticated work, triglyphs or lions' heads in the frieze, with a bastion above the main entablature for artillery, over this being a small triangular tower with loopholes for muskets or for lookouts on the open country. These architectural structures were for offense and defense, of which men made f free use at great connecting bridges as stated. The entrances to the bridge passage were open, and naturally were connected with the adjacent streets; stone bridges with stone parapets, interrupted by pedestals with stone statues on them, all in beautiful treatment and combination, like the Bridge of Ammananati mentioned in Florence -- indeed the most beautiful work of modern engineering art until the present hour; the Colleoni among bridges! The middle ages liked to add little chapels on a land or river pier (old Bridge over the Rhine in Basle), an idea likewise borrowed from antiquity, as shown by the little temple (cell with a clear width of 8.5 ft.) on the Bridge at Alcantara (see Durm, Baukunst der Etrusker und Römer, 2nd edition, Part II, Vol. 2 of this Handbook, Fig. 618, p. 544), which after its useful employment in the middle ages reappears in the chapel in the middle of the covered bridge (696.8 ft. long) over the Ticino near Pavia (Fig. 121), whose wooden roof rests on small piers of gray granite.

The Renaissance in Italy in general went out of its way to metal structures in a grand style, although known to it was the bronze framework of 98.4 ft. span with its rafters of channel section over the vestibule of the Pantheon in Rome, that was still standing in place in the 17 th century. Likewise it remained in sympathy with iron as a structural or connecting material, by the mode of connection in antique temples, then by the window grilles and locksmiths' work on antique secular structures, and yet more by the ironwork in mediaeval buildings. It took from thence without scruple the not always worthy of imitation, visible ties of vaults. Scarcely any c

church edifice and no palace court surrounded by porticos is free from this.

495. Iron as a material aiding Construction.

It also went about these things scientifically, as the works and experiments of Poleni in hooping the dome of S. Peter in Rome, and also although less assured, shown by the placing of iron rings about the dome of the Umilta at Pistoja. In the refined smith's work, for example in chapel enclosures, choir grilles, balcony railings, lanterns, banner holders and the like, it excelled all previous works. In spite of all this knowledge, preparation and the good training and skill in execution, the Renaissance remained skeptical concerning the use of iron as the structural material for grand structures. Had the former wooden log construction of its basilica roofs at Padua and Vicenza in segmental form been translated into iron, or had these been built with De L'Orme's timber girders (see Geymüller, Baukunst der Renaissance in Frankreich, Part II, Vol. 6, p. 345 of this Handbook), where De L'Orme wishes to cover a hall of 167.2 ft. span by his system, then perhaps t the attempt would have succeeded in ensuring to iron the leadership as structural material for grand buildings, earlier t than this occurred.

"It must not be, for it would have been too beautiful." But whether it would then have built its possible iron bridges on stone piers, and have placed before them vertical stone terminations, is a matter by itself, that can only be surmised. One must indeed best answer the question negatively.

496. Artistic Treatment of Steel Structures.

We worry ourselves today by the question of the "artistic treatment of steel structures, but forgetting therein, that this question is tolerably subordinate in modern bridge construction. And if one seeks the value of a great bridge structure in the stone substructure or a prefixed portal of stone or of steel, and does not know how to give these in the ground forms of construction, then he rather ceases to make projects, in what manner help can be found in our need, and he does not worry himself, whether a stone portal designed in the antique, Romanesque, Gothic, Renaissance or Rococo style deserves preference over others, when deep thinkers appearing here are u unable to distinguish the style forms mentioned from each ot-

other, and call upon Vitruvius, Carl Bötticher and other esthetic lights, and rejoice over the increasing participation "for artistic worth" on the part of the great intrusive multitude, celebrating this as a visible expression of our very propitious time. Poor present time! And if now finally the revelation is expressed, that it is not architecture and at most has become a branch of construction, not influenced by tradition, to approach nearer the aim, then must one indeed assume, that our new brothers in the colonies must be called as arbitrators in the dispute; at least they are n not hampered by any technical traditions.

497. Artistic Selection of Style for Bridges and Portals.

It is further stated, that one can seldom find antique and Renaissance forms in the bridge portals, which however play a particularly important part in the general appearance of m many great steel bridges. On the whole, the mediaeval style forms become the rule for such structures (?), which may be explained in that in the architecture of the 19 th century, the historical tendency predominated, and the motive of a fortress tower appeared to have greater justification, since the so-called bridge heads were fortified works. Really to follow these statements further does not here pertain to the chosen attempts, but they must be touched upon.

Personally, I might agree witha"fully temperamental"of Professor Franz:--

"Away with the stone masks, away with falsehood."[255] Every steel structure is to be so transformed as to exhibit no ugly side, and therefore no longer needs a covering by stone construction! Thus might I inspire myself more for the idea, that only the first stone piers in the stream can be architecturally and finely ornamented, not emphasizing a passage from one bank to the other, to which space-concealing surfaces in continuation are lacking, or are merely metal webs. In front a are many dormers with no soldiers behind them!

Note 255. From W. Franz. Kann man die Ingenieurarbeiten schön gestalten? (Can engineering structures be made beautiful)? Berlin. 1910. Published by Reichsboten.

The frequently praised"relations between the steel work and the stone masses" everywhere exist so far, as one serves as a support for the other, and the more sensibly and skilfully t

this occurs, so much the better; but a harmony as for monumental buildings of one material will nevermore be obtained, even if the entrance portal on the traffic street be ever so "remarkable", and be treated with innate truth or external necessity. And if for a bridge the portal to nothing must play t the leading part, then remains merely the monotonous trussed girder bridge, where the steel is kept flat, at most is possible an architectural connection between the stone portal and the steel structure, while a limitation of the bridge construction to itself and to the supporting substructure permits all forms, that can be tolerated in God's free nature. To me appears always more appropriate the bit of truth in the steel Bridge over the Garabit valley in France, the Kirchenfeld Bridge and the Kornhaus Bridge in Berne, than many of the notable and unfortunate transfer structures over the north Elbe in Hamburg, or the street Bridge over the Rhine at Worms, etc. No further explanation is necessary in order to judge as fully worthy artistic existing steel bridges, like the Alexander B Bridge in Paris with the massive abutment piers of Kiakta, or the Coblenz Bridge over the Rhine, without the very modest Stolzenfels Castle architecture. The great and massive structural forms, a happy course of lines thereon are effective in the view of the landscape and of the city; the riveted wrought or cast ornaments, or the freely invented plant growth with grotesques and the like (the ornaments attached) are accessory and express nothing, at most having some value on paper for the designer and his patron, but to its own injury.

All esthetic good advice gives many stones, but little bread. Also excessive in this sense is the most recent publication on the "Artistic Treatment of Steel Structures", Berlin, 1913! wherein it is stated, that for a sound judgment of many executed examples, an autopsy of the same at the locality is required, if one will not be unjust, and I likewise hold as proper the knowledge of the origin and of the history of the construction of such works. Officials and means often enough teach the architect what he must or may build. At the portals of the Mannheim-Ludwigshafen Bridge over the Rhine, which may be regarded as imitations of the antique, for an example to the architect of the premiated design, the higher structures of the pylons adorned by statues and sculptures were simply str-

stricken out with the frivolous remark, that these would be gladly built, if the architect would pay for them. "Sufficient for the wise! Under present conditions:-- to the engineer is bridge construction in its entire extent, to the architect a and the sculptor is cooperation in the treatment of the piers and abutments without senseless terminations by entrance portals.

n. Cemeteries.

498. Cemeteries.

Cemeteries are not to be omitted as being public structures, according to the custom of utilizing as burial places churches, cloisters and courts. All great designs in Italy, at which we are amazed today, and which are erected in a grand style as communal structures, belong to the modern period. Thus was first opened in 1836 the beautiful Cemetery in Naples, that in Milan by Macciachino in 1866, another in Milan in 1895, t that in Genoa planned by Resasco in 1867, and the one in Rome (Campo Verano) in 1837. The Cemeteries in Messina and Verona are likewise of recent and very late date, as well as the new Cemetery in Trient, but that in Palermo (Campo S. Orsola) was already built in 1782, the one in Bologna in the Certosa erected in 1335 became a general cemetery in 1801. The Cemetery in Ferrara lies near the former Carthusian Monastery (built 1498-1553), and the republic of Venice arranged its cemetery on the burial island, which bears the oldest Renaissance Church of Venice, S. Michele, erected by More Lombardi (1466).

A separate cemetery is assigned to the Hospital of S. Spir-
730 ito in Rome, whose plan is shown by Fig. 675. It lies direct-
ly next the hospital building, and only receives those dying
therein. The graves are similar, and are regularly arranged,
the enclosing walls being of simple architecture and decorat-
ed by paintings. The adjacent mortuary chapel is a small bu-
ilding. For this arrangement executed by the architect Fuga,
the architect also conceived the mode of burial: the bodies
are cast into pits closed by a covering stone, and are cover-
ed by caustic lime, that consumes them.

Section XXI. Plans of Cities, Public Places, their Location and Form within the City. Arrangement of the course of the streets.

"New plans of cities seldom occurred, but still engaged the thoughts of the most famous theorists."

J. Burckhardt. Gesch. d. Renss. In It.

"To the tyrant are hostile, both his followers and enemies. The plain is more appropriate for the free people, the mountain safer for the tyrant."

L. B. Alberti. Book V.

499. Introduction.

No land in Europe has had to consider in the past and future so much as Italy the architectural past and the arrangement of its cities. Greeks and Etruscans had already brought their highly developed culture into the land, already in permanent places, before Rome extended its mighty sway over the peninsula, and appeared as its ruler. Grecian construction with s stone beams and Etruscan with arches became the basis of its architectural creations, and the treatment of the residences of the new rulers were connected therewith. Even if by the expulsion of the first settled peoples many open and fortified cities were blotted out from the earth, yet the practically inclined Roman people were so far conscious, that it would be economically preferable, to organize the conquered places and cities for themselves, so far as this might be possible. Rebuilding, transformation and extension were therefore the first problems of Roman city architecture, and from the arrangement of the permanent camps and military colonies resulted t the second.

National Roman plans consequently were not the most numerous. From small barracks we see great fortified places and cities with industries proceed. Similar procedures occurred in the time of the migrations of nations, allied ones in the middle ages, and again similarly in the time of the beginning Renaissance, differently colored by advance and decadence in customs, mode of living, and not for the least part from changes in t the use of weapons, the conduct of men, as well as the system of government.

The statement of J. Burckhardt, that to the men of the Renaissance period fell no great problems in building a city is

just as intelligible as true, and likewise applies to our time in Europe, particularly for the older civilized states therein. Indeed enlargements but no new foundations.

"Destroyers of cities" but no founders of cities; the name of or municipal architecture is a pretension for this work, but does not accord with the meaning of the term.

500. Extensions and Additions.

The small transformation and preservation of ancient and 1 inherited possessions and arrangements sounds like scorn.

Note. See the very noteworthy Essay in Zeitschrift "Marz"; July 5, 1913. "Mankind and Homes" by Hermann Gottscholk.

The rebuilding of Ostia after the destruction of the ancient city, the building of a castle there by ponticelli and G Giuliano da Sangallo (1483-1489), the beautifying of the originally little city of Gonsignano by some new buildings and its christening as the city of "Pienza" by Pope Pius II. The beautifully built and much praised Place of the little city of Froriano near Ancona by Pope Nicholas V (1451), the Place of Vigevano surrounded by porticos and the shops of the small citizens, with its lookout and clock tower, etce., are not to be termed the founding of new cities. Just as little is this the case "when in the 15 th century important cities strove to make their crooked streets broad and straight, and satisfied themselves with the appointment of the so-called officials for improvement (just as with us) for carrying out the matter". In Bologna certain streets were laid out straight.

Also the breaking through for straight streets, for example as in Ferrara and Mantua, are not founding cities, but rather transformations within the city walls. When J. Burckhardt f further says, that in spite of this the most famous theorists in architecture busied themselves with the problems of new c cities, this for example was already done by a Filarete, but not that he found patrons for his ideas.

501. Filarete on laying-out Cities.

Filarete in his Treatise on Architecture (Book VIII) requires for his ideal city an absolutely level plain, which is f fortified by 8 gate towers connected by walls, to which must correspond 16 streets extending radially to the centre of the city, the Place on which should rise a princily palace and a cathedral. (Fig. 676). The streets must be interrupted by a

alternately larger and smaller expansions in the form of square Places, where a theatre and a hospital are not to be forgotten. For the chief Place he desires the rectangular form in proportion of 1 : 2, i.e., a width of 293 ft. and a length of 586 ft., along the sides being carried canals 23.4 ft. wide with a portico 15.6 ft. wide and 23.4 ft. high. At the midst of the Place must a fountain rise, that must have 6 entrances. Around the Place are to be shops with cellars, so that each
732 trade finds sufficient space for its practice. Between the portico and canal extends also a street 15.6 ft. wide, that must lie 2.92 ft. lower than the portico and the Place. At each entrance to the Place will be placed a bridge 11.7 or 1 15.6 ft. wide. The canal must be enclosed by a parapet 3.9 ft. high, with benches for sitting. - - Booths for butchers and fish dealers are to be placed directly over the water of the canal.

502. Place in Vigevano.

A regular form of the Place, canals, shops and promenades, in the midst of the Place being a fountain for ornament and use, were accordingly the first requirements, and with reference thereto is planned and built the Place at Vigevano, a w work of Ludovico Moro, that was famous as "beautiful and ornamented." The rules of Filarete are followed, so far as circumstances permitted. Yet the fountain does not now stand at the middle, but is more suitably in the shade of the narrow fronts of the houses, and the princely Palace of the Sforza rises behind the dwellings and the shops of the Place, with its massive clock tower and the beautiful loggia of Bramante, proudly dominating theplan. (Fig. 677). The columns of.the arcades are of gray granite, roughly and mechanically cut, t the architecture is brightly painted, the lofty tower on the contrary being constructed of dark red bricks, rising behind the business buildings with their tile roofs and numerous chimneys. Really a beautiful and ornamental view of a public Place of a small city.

The uniformly treated dwellings and arcades indeed have a rather tiresome effect, but the monotony is softened by the well divided tower of the Rocca. The design is by a single gush in its entire extent, I might say was completed on the same day. No possessor of a house should or wished to excel

another, all were the same small people under the protection
733 and supremacy of their prince, and no later time has destroyed the unity. In Vigevano (near Milan) could be put up a dedication tablet: -- Filarete to his Duke, the certificate of acceptance gives the realization.

503. Place in Pienza.

In contrast to Vigevano, at the founding of the city of Pienza by Pope Pius II (1459-1462), the small Place was only s surrounded by public buildings, the trade people being kept afar. Dignified and grand must be the effect of the nearest surroundings by the Cathedral, Palace Piccolomini, Vescovato, Palace Pubblico, and a private Palace, as the sole dominating architecture. (Fig. 678). Thus for Places of the second rank was sought a regular treatment.

As in antiquity, the shops on the market were established and rented by the State, the city government, or by rich private persons.

Since as already stated, new cities were seldom laid out in the Renaissance period, and the old ones must be satisfied by enlarged structures, then a uniform style construction of the buildings on the Place could not be counted on, even if one mighty in the profession, Michelangelo, advised carrying the architecture of the Loggia dei Lanzi in Florence around the Place di Signoria in its entire extent. With the massive form expression and dimensions, the good counsel may be understood, but the design changed into smallness would have lost all monumentality. How many such fall by false scale!

504. Unity of Style of Buildings around the chief Place.

Many Places also only in the course of time became symmetrical and polyform, since most alterations or extensions only were gradually completed according to increasing needs. According to the law, that fashion is stronger than reason, always according to the time in the rebuildings undertaken, the most diverse styles are expressed in the designs and rebuildings. Likewise the change in business life and in the mode of living in general, may have had its part in much confusion.

The new "Place" was mostly assigned to the location of the ancient forum, where formerly stood temples with porticos and basilicas of justice, now rose Christian churches, porticos, city halls and administration buildings, lofty lookout and

clock towers. Unity of style and of architectural composition vanished, and frequently gave place to greatly varied forms. Antique silimarity disappeared, the structural design told i its story.

For us such a varied series of buildings indicates a revel in memories, a conjuration of old times and histories, an incitement to study and to comparison.

737 505. Market Place in Verona.

Such a varied view is given by the Place della Erbe and the adjacent Place dei Signori at Verona, as may scarcely be found elsewhere in Italy, at the same time being an example of a r rectangular but not regular design of a Place. A rectangle can indeed be inserted in the market place, but it is not therefore rectangular. It has three entrances; on the surrounding buildings are represented all styles to the severe Barocco.
735 A church tower and a tower of the City hall 272.8 ft. high rise from the mass of buildings, together with fountains and memorial columns. A varied and animated life moves there during market hours, a multitude of cloth tent roofs on the tops of fir poles, protect the dealers and their wares from sunshine and rain (Fig. 672). -- Here is also the place where Verona's citizens once swung their weapons! On the contrary the Place Signoria (now Place Dante) is imposing by its buildings and the monument of the great poet.

Greater contrasts than these existing between the Place of Vigevano and that of Verona can scarcely be found again. To the architect of the school the former may be more pleasing, but to the jovial and cultured man, the latter with its traffic of an animated multitude of people.

Further Places "with square and rectangular"forms were those of S. Croce, S. Marco, Azeglio, Vittorio Emanuele, S. M. Novella and S. Annunziata, all in Florence, then that in Piacenza with its two equestrian statues, those in Reggio (Emilia), Gubbio, Perugia, and as especially beautiful and distinguished by adjoining buildings in a grand style, that in Vicenza is to be mentioned.

506. Places of different Forms.

Of Places in trapezoidal form should be named Place Capitol in Rome (Fig. 680), and the Place before the Cathedral in Pienza.

L-shaped public Places are that before S. Petronio in Bologna, the Piazza and Piazetto in Venice, and Place Signori in Florence.

Semicircular, oval and horseshoe shaped Places of great importance are the Place del Campo in Siena, from which 10 streets open radially, the oval Place del Popolo and the great Church Place before S. Peter with its porticos, fountains a and the obelisk in Rome, and in the same city the entirely regular horseshoe-shaped terminating Place Navona (circo Agonale), as well as in Mantua the desolated Place Virgiliana.

736
737 507. Irregular Places.

Irregular, but interesting by their arrangement, are the P Places dei Frutti, d'Erbe, and of Unita Italia, with the adjacent great buildings of the Salone, University, Palace del Capitanio with the clock tower and the Loggia del Consiglio at Padua (Fig. 681).

In the midst of the city of Udine, located at the foot of the castle hill, the Place Vittorio Emanuele is particularly distinguished by the extremely happy arrangement of its monumental buildings, with the Palace Municipale, the great Portico with massive portal and clock tower on which stand two b bronze figures to strike the hours, as in Venice. Not easily be offered elsewhere an architectural view of a similar nature. (Fig. 682).

As peculiarities must be designated the Campo of Ss. Giovanni e Paolo, and the Place near the Rialto in Venice. The C Campo mentioned is not large, but by its buildings and the s statuary ornamentation as well as its being bounded by the c canal as a passage street, is distinguished as a creation of 738 the first rank in artistic respects, while the other was originally conceived as a great place of assemblage. (Figs. 683, 684).

On the whole, the idea of the antique market place is retained in all the designs, but conformity, that prevailed in t those in antiquity, is no longer found in the succeeding period.

Shops around the Place in a consistent way and grand style were properly arranged only at the Piazza in Venice, and have remained until today. The old magnificent Church of S. closes one end of the Place, at an angle of which rises the slender watch or bell tower (Campanile), with the magnificent Loggia

at its base; at the other side being the well known clock tower with its bronze bell strikers.

At the second end, which was formerly terminated by a church, there are now built shops with access or passages toward the Piazza. The form of the Place is a strongly expressed trapezium (Fig. 685), that does not result from optical but rather from practical reasons, with reference to the locality, just as the case for the Places in Pienza, at the Capitol, and at the Place before S. Peter between the entrance facade and the colonnades. (See the corresponding Fig. 680).

The parts of the Place indeed remain the same, but the form and the so-called united development are excluded; everywhere new life springs from the existing old one. The Renaissance has mostly taken charge of the formation here, and the sound sense of prince and people have then derived more good from the requirements, than all the theoretical lectures on this subject, i.e., on the arrangements of cities, so far as they refer to the artistic side. Yet here is again true the law, "that only the living are right." Men must never lose faith in their own infallibility and imagination.

Where conceived in the Renaissance period, Places and their forms became extended and improved, larger and more suitably treated. More light and air were already then the solution, 739 and the enlargement of a public Place for the benefit of worthy monumental structures was the endeavor and requirement. (See Michelangelo's advice to Cosimo I on the treatment of P Place Signoria in Florence).

A climax of designs for public Places, a model for all times, will ever be and ever again remain the Place de' Signori in Vicenza, with its two columns from the Venetian period, and the Basilica with its widely open marble porticos of Palladio, the same motive employed in two stories over each other, opposite this being the Loggia del Capitanio, dominated by the slender tower of red bricks 269 ft. high. A view of the peace and dignity in the first hour after noon. an animated one in the morning hours of the market day; visionary and noisy on festival days, under the setting sun placing us in consecrated harmony by its splendor of color (Figs. 686, 687).

A charming colored view is also given by the marketplace in Trient with its variegated painted house facades, the Romane-

Romanesque Cathedral with its heavy bell tower and its octagonal bulbous termination, the great Fountain of Neptune, richly adorned by statues, and its gushing waters. (Fig. 688).

After the great plans in the frequently mentioned work, "Le Fabbriche di Venezia" is drawn a plan (Fig. 684), whose accuracy and designation are not fully guaranteed, but which tolerably agrees in general with what is given by the well known smaller plans of the city, and comprises the buildings enclosing it, especially those of Isola di Rialto with the bridge over Canal Grande, the Palace dei Camerlenghi (built 1525), the Church S. Giovanni Elemosinario (1523) and S. Jacopo on the Place of the same name, the Fabbriche Nuovo di Rialto (r (restored 1553 and 1860) and on the other bank of the canal the Fondaco dei Tedeschi (1506), also particularly the marble Rialto Bridge with arch of 88.6 ft. wide.

Whether previously intended or not, here is expressed an i idea, which provides a more extended view from the angle of the building near S. Giovanni to the row of houses of Place S. Bartolommeo and reaches the Place S. Jacopo lying on the left, i.e. only touching and not penetrating the last. The Place is thus merely a side enlargement of the main course of the street.

At the Riva del Vino, just before the ascent to the Rialto Bridge, the axis of the street has a slight bend in its direction to the Place S. Bartolomeo. The distance from S. Giovanni to S. Bartolomeo is 754.6 ft. Thus also in compact and angular Venice is an attempt to secure a long continuous street line, that is but slightly affected by the elevation of the bridge arch, but still adds a long line for the extension Thereby is designed a plan, executed at great expense, that would not fail in effect, but it should have been on a level in appearance with the marble palaces and churches of the city. This one straight street does not run from a centre, nor from a prominent building with which it is connected, and it is t therefore not intended for a definite effect. It is otherwise with the three long streets that extend from before the Gate and Place del Popolo toward the interior of the city. Radiating in three different directions (Fig. 698), they conduct the visitor to eternal Rome into the heart of the city, first through the Gate, then through the vestibule and passage to

741 the interior, the dome.

742 A further and characteristic part in the arrangement of Italian cities in the time of the Renaissance is played by the location of the palaces of the rulers, and the course of the streets within the city. It is one way for the places with a tyranny as the form of government, a different one for a r republican organization.

508. Influence of Tyranny or Republic on Location of Palaces.

In the former the rulers kept the rear free, if natural conditions permitted, choosing an elevated locality, dominating the city and inhabitants from thence. In cities with a republican government, the state and commercial buildings were placed at the centre.

509. Course of the Streets.

Care was taken to have the arteries of traffic extend from the circumference of the city directly thereto.

510. Centripetal Arrangement.

Thus the course of the streets was centripetal, as for example is the case in Bologna (Fig. 689), and is still so. This city was already a Roman colony in 189 B. C., and came under the rule of Bentivoglio in 1401, so that we here have to do with an early plan. We find a similar one, as an exception to the rule, in Udine (Fig. 690; Castle restored in 1517 by Fontana), and also in Ferrara; the castle in one rising from a high elevation, in the other being surrounded by broad moats. In both cases the occupants could check the inhabitants, including the unruly elements therein. In Milan, Novara, Brescia (Fig. 691), Cremona, Bergamo (fortified in 1501 by the Venetians), Cortona, S. Gimigiano, Ancona, Spoleto, Rimini, Bari, Brindisi, etc., the seat of the ruler is placed at the outer edge of the city to be protected or dominated, and this almost became a characteristic of a city ruled by a tyrant.

511. Milan.

Outside the Roman city walls, Milan already in 1157 was surrounded by a wall and moat, the existing Naviglio, which was followed by a second one (1340) for the protection of the suburb. The Viscontis and Sforzas assumed the rule (1450-1535) and the culture of art in the city. In what sense this was intended is plainly shown by Fig. 692.

746 512. Course of the Streets in Rome near Gate del Popolo.
At the beginning it was stated, that the centripetal or centrifugal arrangement of the course of the streets was determined by political reasons; but these might also be entirely practical. For the plan of three streets near Gate del Popolo in Rome this was certainly the case. Here the natural conditions of the locality compelled this; the ancient Via Flaminia from the Bridge Molle to the Capitol in an accurately s straight line was from ancient times one of the sacred and l fixed streets, on its left the Tiber forming the natural border of the ground, on the right being the steeply rising Monte Pincio. Neither could be moved; along its back and beside
747 the foot of Pincio were the only possible places for building, unless the ancient military road was to be sacrificed. Thus the often surprising course of the streets resulted of itself, and which was certainly the same already in antiquity. Michelangelo was entrusted in 1561 under Pius IV with the existing Gate to the Place, yet it was only later constructed of travertine by Vignola. The connection between the heights of the streets of Via Flaminia and of Via del Babuina is made by two great flights of steps near S. M. del Popolo and near Trinita del Monte, that show a difference in height of 65.6 to 98.4 ft. (See Letarouilly, text, p. 111). Determinative for a similar centripetal arrangement the streets in Rome was at another point the course of the Tiber and the location of the Castle of S. Angelo. (Figs. 693, 694). The radial arrangement of the streets is also compelled here by local conditions, a and not by any academical experiment. For the course of the streets was also determinative the assumed system of the blocks for buildings. This was required by the form and location of the plan of the city.

Man was master of the situation on the plane, but on a hilly location, where the place for building is often shaped like a polypus with extended arms, man must yield and make a virtue of the necessity. (See Perugia, Volterra and others).

513. Leading Motive of the Course of the Streets.

The leading impulse to the course of the streets was always given by the ancient Roman plan of the city, according to wh-
748 ich two principal streets intersected at right angles according to certain points of the compass, within which were located

the blocks produced for buildings, separated by narrow streets.

514. Square Blocks in Turin and Novara.

They are to be recognized still in nearly all Italian cities, as for example in Turin, Novara, etc. (Figs. 695, 696), where the ancient Roman camp is indicated by long and broad streets with rectangular blocks of houses, frequently connected by arcades (porticos). The old portion of the city is to be referred to the time of the emperor Augustus; it exhibits a rectangle with 11 towers at each side. Since the 17 th century the newer city has been extended in the sense of the ancient plan without disjointing, only excepting the two diagonal streets from the royal Castle to the two bridges ower thePo.

515. Hippodomic Plan of Streets.

This regular plan is usually termed hippodomic, its inventor Hippodomos belonging to the Alexandrine time. But it was already in force in ancient Babylon, in Selinus, Paestum,Cyrene and Miletus, where all streets extend in straight lines; moreover in Babylon the principal and cross streets had as m many gates as alleys. (See Durm, Baukunst der Griechen, 3 rd edition. Part II, Vol. 1, p. 221-224 of this Handbook). Why "hippodomic", when others had already made them more than a century earlier? Always again the story of Columbus and of Vaudan!

What men already long before had expressed was later cast into the shade by the plan in Rome, and all speak of Rome and then forget Bologna! A natural procedure is stamped on an art work, and the course of the streets before the Palace in Versailles, that from 1682 onward was raised to the permanent residence of the King of France, will even be nothing more t than the ancient Via Flaminia in the Avenue de Paris, the Via Ripetta in the Avenue des Sceaux, and the Babuino in the Avenue S. Cloud, translated from Italian to French. Both plans have the same sense, only being changed into other dimensions. And if it be asserted today, that such imitations in smaller proportions in a flat country, compelled by nothing more than the strong will of a master and an energetic engineer, as before the Palace of Versailles, "three streets slightly diverging within a sector of 60°, and that this procedure was repeated in the young technical city of Carlsruhe in Baden," then shall this be emphasized, only because technicians have expr-

946 expressed themselves against it. It is yet somewhat different, when the princely founder of a city fixes in the midst of a forest a starting point for a palace, from which 32 radii are drawn at equal distances, are wooded like alleys, 8 of these sectors being assigned for building purposes.

516. The Ideal City.

From the same source we derive, "that in the time of the R Renaissance in Italy the ideal city originated, and symbolizing the idea of the ruler, radial streets were arranged from a tower or palace, and that these were also connected together at right angles." How the last step should become practical, must still be explained! Personal safety and not symbolism was the impelling element!

517. The Decoration of Places..

Of the ornamentation of Places, we have already seen that it consisted of springing fountains, memorial columns and statues. We place these today chiefly on one of the principal axes or in the centre of the Place. The masters of the Renaissance indeed did the same, but not without exceptions. The location of these statues again is mostly fixed by local conditions and the mode of use of the Place. The equestrian statue of Marcus Aurelius stands on the middle axis of the Place of the Capitol; the steps lying before Palace Capitol have two branches, the entrances to Palace Conservators lie on the longer facade next the Place. To pass into the interiors of these buildings, one must turn to right and left from the ramp for access. The rider in the chosen location never obstructs the way, but rather points it out. It is otherwise in Florence with Place della Signoria. The Ammanati Fountain with i its grand ornamental statues is placed close to the facade of Palace Vecchio, and only the equestrian statue of Cosimo I s stands between this and Palace Uguccioni, thus not at the intersection of the two middle axes of the Place (Fig. 697). On Place S. Annunziata the equestrian statue of Ferdinand I
947 is indeed located back on the middle axis of the street of access and of the Place of the Church, but is not at the centre, i.e., at the intersection of the middle longitudinal and transverse axes of the Place. Men wished to keep this and i its porticos free for assemblage and church festivals, and therefore placed the statue back at the entrances of the port-

porticos, creating a substitute for the middle of the Place by arranging at the sides two low bronze fountains. The sculptured ornamentation was thus happily distributed, and the u utility of the ground in its greatest extent was not restricted by decorations (Fig. 698). The two obelisks on Place S. Maria Novella in Florence stand on the principal middle axis of the Place and do not refer to the middle of the great facade of the Church S. Maria. On Place S. Croce and Place Vittorio Emanuele the statues stand at the centres of the squares; but both are wooded and accordingly are exhibited as good and bad, which especially appears at the evening musical performances on the Place. In Vicenza, Padua and Venice the areas of the small squares enclosed by buildings are left free for traffic and festivals, the memorial columns and the like are set at the entrances of the squares, thus being out of the way of certain occasions at festivals, aside from producing a fixed architectural background for the statues. One cannot often set these near enough to the background, was once stated by F. A. Kaulbach at the Competition concerning the question of location of the Monument of Emperor Wilhelm in Berlin, respecting the position of the Monument of the Great Elector there.

In Venice the Colleoni Monument stands at the right corner of the Place and near the Church. Thus a not large square m must be free for entrance to Church Ss. Giovanni e Paolo and to the School S. Marco. The equestrian statue must leave room. Thus here are first practical and not the so-called esthetic reasons. Likewise Donatello's Gattamelato must recede to the corner on Place del Santo forming the square.

The two columns on the Piazetta at Venice in a way form the uncovered entrance portal to the Place, just as in Vicenza a and Padua; in Venice from the lagoons and the Molo, in the o other squares from the narrow streets. Neither the Piazetta nor the great Place would have permitted the reception of a statue, wherefore the new Italy has also located its Victor Emanuel Monument in a well chosen manner on Riva di Schiavoni. The Place S. Marco could only receive the three masts for flags, but which are again art works of the first rank.

The Neptune Fountain in Bologna was erected by its contemporaries on a corner of the Place and not on the square before S. Petronio, which was desired to be free for festivals and

for visitors to the first building of the state and to the 1 largest church in the city. Modern times located there the Monument to the King!

In Rome the two mighty fountains on the Place S. Peter are set back quite to the sides of the Place, so that the principal facade of the church be not injured, leaving only the pointed obelisk to stand at the middle, that disturbs nothing. (Fig. 699). The colonnades of Bernini form the grandest enclosure of the Place, that can be imagined.

On Place Farnese the two great water basins are located to right and left of the middle axis of Palace Farnese in order to leave free access to the building. On the long Place Navona the fountains stand at three points on the longitudinal axis, recalling the spina of the ancient circus, etc. (Fig. 700).

As a rule for locating art works on public squares, one can
779 only repeat the words of Gottfried Semper:-- "That art knows but one master -- necessity." And only from this point of view are the locations to be considered, without rules or esthetic empty phrases. And what otherwise in this amazes us are mostly things, that did not originally exist, and also were never intended, only gradually in time originating from the pressure of circumstances and accidents. But in no case must the traffic and the purpose of the Place be injured by the ornamentation. Therefore also a strongly frequented traffic street is also calmly extended, so as to merely pass along one side of the Place, in other words the Place is arranged as a great enlargement of the traffic street, as this is done in Florence and Venice (Place della Signoria and Rialto) in a skilful way, grandly at Palace Royal and at Place del Duomo in Palermo.(F (Fig. 701). This rule is therefore no invention of the modern period, just as little as for reasons of defense against an entering enemy are the stepped angles in mediaeval cities, which are again brought out of the lumber room as a picturesque motive in the treatment of cities. (But these recessions are often, for example at Schaffhausen, arranged in the wrong direction for this sense!).

780 Finally a further word on the treatment of the Place before the structure of S. Peter in Rome according to the statements of Fontana. Concerning this have already been spoken many w

words of praise and blame; many things have been sought behind the arrangements, that are not concealed there, and finally were very simple reasons, that compelled the form existing today. Then it should not be forgotten, that the floor of the church lies very much higher than the street of access, i.e. a considerable fall from the doorsill to the Tiber bridge (B bridge S. Angelo) was to be overcome. The heights of both w were given; likewise the form of Place S. Peter was partly l limited by the Vatican and partly by the existing houses on the other side; also to be considered was the necessity of a rapid removal of rainwater on such a great Place during storm and continued rains.

The differences in the levels of the ground led to the design of the great stepped terrace A (Fig. 698), and the great size of this was due to the presence of thousands after the close of a festival service. By the semicircular form of the porticos B, B, Bernini skilfully screened the adjacent buildings, and yet retained a great atrium, which has the area of the dimensions of the Colosseum. The width of the facade with the portals gave the beginning points of the connecting corridors D, E, toward the porticos, whose position was as good as given by the descending ground. If the circular form of the porticos was to remain effective, then the opening for t the view of S. Peter must not be made too wide, whereby again the ends of the corridors at this side were fixed. Thus originated indeed the inclined floor and cornice lines on the c corridors. Through the latter men passed to the Palace, to the Royal Stairs and the House of God. To facilitate access of the people Fontana says,[256] there was given to them a gentle inclination, since the church lies higher than the beginning of the porticos. The problem could only be solved by the arrangement of numerous steps or by an inclined plane. To not fall into greater faults, men decided for the latter. The m members of the corridors must then be made parallel to the i inclination of the Place, while evidently the pilasters and window jambs must be vertical. Thus is explained the peculiarity of the oblique architecture of the connecting corridors. Nowhere in the descriptions of the old master is there any r reference to any perspective folly; everything is explained by the practical necessity.

Note 256. Fontana. Book IV. Chapter V. p. 195.

At m in Fig. 699 the porticos were once to end with two great portals at right and left, but this was omitted. On the other hand, Fontana designed to erect at B, at the same distance as from the obelisk to the church, a bell tower or a magnificent piece of architecture, as a substitute for the removed tower of Bernini, behind this at W being a great fountain, with other connecting porticos F, N, R, extending thereto, a and animated by fountains at R. With regard to the course of the Tiber, the street converged toward a, b, so as to lose no area for building. But if a piece of perspective art is to be found in the arrangement, then this could only be effective for the loggia, from which the Pope dispenses blessings; this alone by the extent of the arrangement before the church reproduced in Fig. 699, could produce illusions as to the extent of the Place and the lengths of the streets of access, as well as to the numbers of the believing multitude waiting there.

With the like broadness of his views, Fontana also explains to us the quite astonishing design of the Scala Regia, in which a perspective illusion was also not intended. He says, that when the Pope desired to go from the Palace to the Church, the then existing passage was dark and dangerous, therefore he had another made by Bernini, well lighted and splendid, w with excellent ornaments. The problem is represented as unusually difficult, for he had to consider the following:--

a. The course of the wall of the Sistine Chapel.

b. The course of the before mentioned connecting corridor.

c. The entrance to the Reciano Regie, which had the same height of imposts as that required for the arches of the corridor.

d. A change to the narrow flight next the wall of the Sistine, that must be made.

e. A reduction in the height of the vaults, required by the location of the floor of the Scala Regia.

Here is also nothing of an intended perspective effect!

How Bernini solved the problem under these difficult conditions is wonderful.

518. Sky Line of the City.

To enhance the picturesque effect of the sky line of the c

city frequently subjected, what they had designed so many great buildings with reference to this. Starting points for this or written evidences are unknown to me, and here the local conditions had the leading part. Perspective views depend in their quality on the possible standpoint of the observer. The Cathedral dome with eight sides affords a very tasteless appearance according to the standpoint.

519. Domes and Towers.

Domes and towers or the accenting of them come in question. Cypresses and pines are taken as models from living nature. By skilful grouping, they may rise to a majestic whole, but they may also cause offence. Whether the projected bell tower for S. Peter would have enhanced the dignity and might of the dome is indeed very much a question. What often still strongly influences the skyline of a city, and not seldom indeed in a very brutal way, are the plain, unornamented, unnecessarily high and [illegible] towers. (See the leaning towers in Bologna). These lofty church and secular structures can harmonize, and if located at the right place, heighten the charm of a city skyline, but also injure it, if not well distributed.

520. Skyscrapers in S. Gimignano, Bologna, Siena, etc.

The Americans have recently cultivated lofty structures of certain kinds. The skyscrapers are stared at as novelties, and the "best and most important city designers" of Germany recommend their adoption for our great cities. An essay on "Berlin's third dimension" expresses this. But need we therefore ask America for advice? On the architectural and picturesque effect of these things, one may indeed have a different opinion; but we should be ungrateful, did we not remember here,
752 that the Italians of the middle ages were already busied in the same direction, and preferred the third dimension as predominating, i.e., made it the prevailing one for a building.

But they do not concern parts of fortifications or of public buildings, but are rather portions of private houses, which were utilized for attack and defense in party feuds, likewise for pleasure in quiet times. (See Rom. Pantini in Italia Artistica No. 11). In the little city of S. Gimignano in the cinquecento period existed 25 such private towers, built of travertine and Macigno stone, each with a height of 167.3 ft.,

which private towers were not permitted to exceed. There still stand 13, that are distributed over a city area of 2625 × 1641 ft. How effective they are in the skyline of the city is shown by Fig. 702. It is possible that also Italy does n not oppose a repetition of this mediaeval mode of beautifying a city, but it is improbable for me.

In the new arrangement of blocks of houses in the city extensions of the larger places the "mode of Hippodamos" is followed. (Rome, Florence, Turin, Milan, Bari, Barletta, etc.).

The appearance of the fourth dimension in architecture perhaps brings something new; but if men already now desire buildings to appear larger, than they really are, then should be recommended the preference of public places of trapezoidal f form, with the location of the important buildings along the longer side of the trapezoid (Place of the Capitol and Place of S. Peter in Rome, Cathedral Place in Pienza), with which I recall the keyhole near S. Sabina, famous in its time (Villa of Maltese Priory, Council), (See Nohl's Skizzenbuch), which foreigners must see S. Peters dome through, on the principle, that the view of a building has the greater effect, the smaller the opening through which it is seen.

C. ECCLESIASTICAL STRUCTURES.

Section XXII. General.

521. Survey.

For the estimation of the monumental religious buildings of the Renaissance in Italy, must be recommended in a higher degree than for other architectural works, to cast a glance on what the preceding period with its religious views had created in this domain.

In the Houses of God culminate the architectural creations of all nations. The highest will and knowledge in monumental art is expressed therein. Greeks and Romans, Romance and Germanic races exert themselves in the same endeavors, to present a place for their highest nature, then an ideal kind, such as imagination can only devise. Some give him a home, wherein he dwells quietly and concealed, where he only receives t the visits of chosen ones, and accepts sacrifices and gifts; others make his home an assembly place, where believers in common have intercourse with the deity present in the spirit.

This is the characteristic difference between the temples of the heathen gods and those of the Christian God. The former were not intended to receive a multitude of believers in doctrinal harmony for common sacrifice and prayer; they should be only the sacred dwellings of the deity, that men venerated.

The original impersonal deity in time became personal, whose perceptible image required for itself the same shelter affording protection as the mortals on earth. The deity assumed the human form, whose virtues and vices were attributed to him; hate and love, generosity and revenge were his own. They envied, persecuted and punished. The image of the deity is dependent on the art of a people; clumsy and labored in the time of the beginning of formative art, perfected and spirited in the best period. Severe and rigid forms, ordered by the priesthood, are opposed to individual and living representation. From the most common and handiest material to the most costly and richest was employed for making the image of the god.

The same steps as the image of the deity likewise had the House of God to pass through. First the hut built of wood, t the woodwork with panels, covered by terra cotta and sheet m metal, then the construction with mixed stone and wood; finally the stone temple constructed entirely of permanent materials,

intended for time and eternity, with stone ceiling and stone
754 roof. A canopy, four columns and a roof over this, or four walls and a roof with a portico placed on one, two or four sides, were indeed the oldest forms, that reappear in all later buildings.

522. Houses of the Deities of the Greeks.

In the best period of Grecian architecture appears the house of the deity on a substructure of several steps like a consecrated offering to the deity, built of white shining limestone as a house adorned by columns, and represented with the noblest ornamentation by sculptures. Its interior either consisted of an elongated room, divided in depth into three apartments, into vestibule, sacred and most sacred rooms, in which stood the statue of the god; or merely of front and rear rooms, separated from each other by a single transverse wall. According to the magnitude of the temple is the cell divided into two or three aisles by colonnades of small columns, mostly in two tiers, or it is surrounded by projecting pilasters with a sort of series of chapels enclosing a single aisle. For temple cells of greater span the inserted columns also had a structural value and reason, to reduce the free span of the ceiling beams. The interior received light only through the great doorway extending to the ceiling. According to the position of the sun and the season of the year, a mysterious twilight may have prevailed within the magnificently decorated house of the deity, which may have brought the believers into a religious harmony in bringing their sacrificial gifts, that was not common, and likewise did not occur on fixed days.

The interior with its ornamental statues and consecrated gifts was like a museum, created in reference to the deity, not to affect in a majestic way the masses, but rather the minds of individuals, which priests and the architect must have attained. But what must speak more strongly to the people was the peculiar location of the temples in groups, and the creation of separate sacred precincts. Generally grouped together in the higher city on an elevated plateau of rock enclosed by walls, to which led flights of stone steps, access barred by massive gateway structures -- in such wise do we see in noblest perfection the temple group on the citadel of Athens!

Separated from the traffic of the city, only with a view of

Separated from the traffic of the city, only with a view of mountains and sea, these houses of deities lie in a precinct enclosed by strong walls, and thus must they be taken, the precinct must be allowed to affect us as an entirety. Toward sunset gray Hymettus there at the east is colored a warm violet, Lycabettus a brownish red, Pentelicon a deep blue, and its quarry red; Acrocorinth glows in a red haze, the mountains of Megara seem transformed into gold. The sea with its islands is sometimes dark blue, sometimes emerald, and then milky; redly gleams the landscape and the leaves of the trees above it, the marble ruins of the temples are covered by a g glow and appear colossal. The inspired eye allows them to arise anew in their decoration by sculptures, and thus creates for itself a picture of the most sublime kind, in which one believes the manifestation of the deity is multiplied. (See Julius Braun, Geschichte der Kunst, established on the basis of knowledge of the locality).

523. West Roman Temple Structures.

Roman art in part took the same course. The houses of the deities received an allied form and arrangement; for they were likewise not intended to contain a multitude of believers. Modest in material and in magnitude in the time of the kings and of the republic (perhaps excepting the Capitoline Temple of Jupiter) were they built, and imperial Rome first created a change herein. The most costly building material in the world was collected; the earlier temporary polychromy must yield to the permanent. Stones of varied colors were introduced; g granite columns with metal ornaments and white marble beams appeared, and what is most important, the wooden ceiling of the cell gave place to the stone ceiling in vaulted form!

The art of vaulting reached its climax, when a change in kind of masonry appeared.

In the Augustan period, construction with through and regularly coursed cut stones was abandoned, and masonry was built of boulders or small spalls connected by cement mortar, which was only subdivided or faced with ashlars or bricks. A sort of cellular masonry was constructed, requiring indeed a greater thickness of walls, only the external visible surfaces showing stones of regular form, between which was filled a mixture of stone spalls and mortar in layers of moderate height.

These layers were succeeded by bonding stones, above which w was repeated the same kind of masonry. Thus originated a network of strong stones, like the cells of a honeycomb, whose cavities were filled with concrete masonry, and the same procedure was also employed in the construction of massive stone ceilings and vaults. Economy and lightness of ceilings with entire monumentality characterized this kind of construction.

While for the oblong house of the deity, the tunnel vault retained exclusive sway as the form of the ceiling, for polygonal and circular plans appeared cloister and spherical vaults in its place.

The circular form of the temple, indeed likewise derived f from an ancient form of house (capanna of Roman shepherds, huts in form of houses), was only sporadically found among t the Greeks, and likewise in Roman architecture it does not belong to the usual form; but the most important structure c created by Roman architecture is to be counted here; the world famous Pantheon in Rome, with a span or internal diameter of 142.7 ft. for the vault, which seeks its equal until our days. Built on a circular substructure of two rings of concrete walls connected together by radial walls, a subdivision of the interior in eight niches results, rises a hemispherical dome with a great opening at the apex. The shaping motives are simplest; on a strong cylinder being a hemisphere, open at the top, to the interior of which leads a massive portico of eight columns.

What is it, that so powerfully affects the observer, when he has passed through the bronze, still antique entrance door? What calls forth the overpowering impression even in the existing mutilation? -- The magnitude and simplicity of the interior, and above all the unity of the lighting, that as if from a particular star falls in the interior from a single point, uniformly illuminating ceiling, wall and floor! But by reflection we receive yet another impression, that holds us entranced, which is the magnitude in comparison with other works of architecture. Like a stone world stands the interior before us, within which we could place the most wonderful works of German, French and Spanish architecture. Contrasted with this mighty central structure in what concerns the internal effect, the vaulted triple-aisled Basilica of Maxentius with its grand

cross and tunnel vaults, of which the first determine the effect in the interior.

556 The exteriors are conceivably simple for both buildings; no value is placed thereon, such as for Grecian temples; only t the interiors must powerfully and intensely affect observers, and in this consists a transfer of the climax of the architectural problem. Men no longer desire to impress by an ornamental exterior, or a harmony produced by a massing of similar things in an area; they only wish to allow the interior to speak for itself, and to this expression was a firm adherence in subsequent times, though certainly in changed conditions of culture.

524. Byzantine Temples and Churches.

With the division of the Roman empire and the transfer of the capital to Byzantium by Constantine the Great, and the introduction of Christianity as the religion of the State, the great problems of architecture were transferred back to the East for a time. Grecian and Roman temples had ceased, and t the Christian church appeared in their place with different requirements.

Here the problem was to create an interior, which on certain days should receive a great multitude of believers; therefore the chief weight must be placed on the form of the interior. Late Roman antiquity presented for this, starting points and models most abundantly in the central buildings mentioned, in the basilican plans with several aisles or other public buildings. And this continued together in the youthful Christian art for the Houses of God the elongated basilican plan, the form of the Latin cross with unequal arms, the form of the G Greek cross with arms of equal length, and the central plan; this art furthermore understood now to create interiors with grand effects, with the simplest treatment of the exteriors, and by the use of architectural details of a dead art. Not easily will men be able to overcome the special charm exercised on them by the basilicas of Rome and Ravenna.

Only one -- S. Apollinare in Classe -- in Ravenna may be e emphasized. Whoever at an early hour in the morning fog from the rice swamps (the landscape and the farm land has altered its form in the meantime) makes a tour to the Pineta, the magnificent pine forests near Ravenna, and suddenly beholds the

picturesquely grouped masses of bricks appear from the fog, and enters the interior of the church, will stand quietly in amazement; a peculiar harmony will overcome him in the abandoned House of God with all its plainness of forms, in which is clothed the architectural idea. A middle aisle 45.9 ft. in width, two side aisles of half that width, the clearstory walls supported by 24 marble columns,a semicircular apse with mosaic decorations, friezes with medallion portraits along t the walls of the middle aisle, covered by an open roof framework, indeed formerly painted -- is everything required. The simple grandeur of the interior, the dignified proportions, the not too abundant light poured over the interior, hold us amazed.

If the basilica was also the starting point and indeed remained such in the Byzantine empire, so also the central structure always busied genius. The idea was expressed in the erection of S. Sophia in Constantinople under Justinian during 5 years, built by the Grecian architects Anthemios of Tralles and Isodoros of Miletus in 537. We see in the plan still a c combination of the nave and the central building; but the latter becomes victorious in the dome, that dominates the entire
557 design! Structurally here is something grand attempted, that was previously only tried in a tasteless way at small scale, i.e., the dome on piers connected by arches, above a square interior. By means of pendentives extending between the arches is created the supporting ring, on which rises the covering vault in form of a spherical segment of 105 ft. span, that is inferior to that of the Pantheon at Rome by about 32.8 ft., but instead is infinitely bolder in idea and execution. It indicates a milestone in the history of the art of vaulting and an advance of the mightiest kind.

"I have excelled thee, O Solomon!" was Justinian's greeting to the completed structure. No central building in all the w world has such a harmonious effect as this! Plain and simple on the exterior, built with the rejection of all ornamental details, indeed with regard to the fact, that this court church lay within the other palace structures, yet the interior makes the impression of grandeur, power and elevation, abounding in the most costly materials! The development of the interior is owerpowering, and each step forwards gives new views!

To this is further added the peculiar lighting by 40 small r round-headed windows in the base of the dome, which bring the light into the middle interior, while other windows above the galleries and in the apses transmit brightness and streams of light into the side rooms. From the sill of the entrance doorway the eye comprises the entire interior, already from there is visible the dominating dome. This possibility, the happily weighed details, neither too large nor too small, the manner of the entering light make the interior seem larger, than it actually is, a combination, that substantially contributes to the mighty impression.

We visited the building in the evening during the month of Ramadan and during the great prayer, when it was animated by the believers, who prayed standing, or at times threw themselves down on the wooden floor, on which the direction of Mecca is indicated, producing a muffled hollow thunder in the vaultsl while the marble walls and the golden mosaics of the domes a and arches reflected the gleams from thousands of little lamps, that outline the architectural lines up tothe dome, or are arranged in hanging chandeliers -- in these hours the effect of the interior is heightened to the highest degree, and every visitor gladly yields to it,and recognizes the grandeur of the interior in architecture.

525. Mediaeval Christian Houses of God.

A further advance takes us through the confusion of the migrations of the nations, which cleared away the antique, to mediaeval Romanesque and Gothic architecture. Who would miss the charm of the cathedrals and minsters of this period of art, or even esteem them too slightly, that animated the sweet dreams of the years of our childhood by organ tones, the clang of bells and the hymns of the choir, with their forest of columns and lofty elevated vaults with their mysterious lighting, "where even the dear light of heaven breaks darkly through t the painted panes". No man, whatever be his faith, can deny the internal effect of these buildings.

But however high the imaginative expression may be esteemed, an internal development, such as that shown by the antique R Roman and the Early Christian art in the basilicas, halls of the baths, in the Pantheon and S. Sophia, was denied to them. The endeavor for this may indeed be recognized, but only on

Italian soil. Spans of 46 ft. or but little more were the greatest that the mediaeval art of vaulting attained; beyond t this size it did not pass; ancient art exceeded it threefold!

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The striving for spaciousness, with the addition of domical construction made itself apparent in the cathedrals of Gothic design at Florence and Bologna in a grander style. While in the north men were satisfied with domes over crossings everywhere with the width of the middle aisle, the south with a racial feeling for spaciousness attempted an extension thereof over the three aisles (middle and two side aisles), and thus enforced the effect of a central building in a peculiar way, with the form of the Latin cross plan, and viewed toward the choir on the exterior.

How in S. Maria del Fiore at Florence, the dome was designed in a Gothic style, we can see from various representations (Fig. 703),[257] remaining to us. How that in Bologna should h have been executed is shown to us by the still preserved wooden model in the sacristy of S. Petronio (Fig. 704). Neither was erected. The substructure in Florence was provided by the Gothic architects. They created four massive piers, two of which in the midst of the side aisles are furnished with passages, connected together by pointed arches for the width of the middle aisle. On this structure rose a massive lofty drum with round windows, over which was the octagonal dome in the form of a cloister vault. Up to the drum was carried the structure by the Gothic architects; the dome above it was the first great structural undertaking of a new and interrupting period, aided to victory by novel forms in the domain of architecture, and which it has now utilized for more than four centuries.

526. Churches of the Renaissance in Italy. Characteristics of Domes, external Domes and Lanterns.

In the execution of these domes, the first deviation from antique art was the arrangement of a second and external protecting dome over the internal one enclosing the interior; a second is to be sought in the loading of the crown by a lantern.

So interesting is the great structure, so mightily does it rise above the exterior and dominate the building, so importantly does it participate in the view of the city, just as

759 little satisfactory is its effect in the interior by the tastelessness of the architecture, by the badly distributed lighting, by the yellow limewash, and by the paintings on the v vault surfaces of the dome, for whose magnitude we only obtain a scale by thought, for example when we from the uppermost g gallery at the beginning of the dome allow the eye to fall on the opposite walls, or look down on the floor of the great c cathedral, where men appear like a swarm of ants, or measure the figures in the paintings, in which the feet of certain f figures show the considerable length of 5 ft. from toe to heel! A charm as in visiting the Pantheon or S. Sophia does not seize on us here, and only the scale obtained by comparison affects us.

On the other hand, 150 yyears later a second work of the same art period even exceeds the grandest creations of the antique . world, of the Byzantines and the Romans, which is S. Peter in Rome! Originally planned as a central structure, it was erected in the form of a Latin cross with a dome over the crossing. This has a span of 139.4 ft., thus being larger than the Florentine, and only 3.3 ft. less than that of the Pantheon, but is again 39.4 ft. larger than that of S. Sophia. It rests on four mighty piers with sides of 48.8 ft., connected together by vast semicircular vaults. Between these are inserted pendentives, as at S. Sophia; but these are no longer spherical triangles but spherical trapezoids, whose form and dimensions are produced by the form of the piers, i.e., by their splay on the inner side, by which the projection of the pendentives is reduced. As at S. Sophia the pendentives combine with the fo-
760 ur arches into a basal ring, which does not form the direct support of the dome, while over it rises a yet higher light-bringing cylinder (drum), i.e., inserted between the pendentive ring and the dome. "I will place the Pantheon on columns", the first master of the building must have said, -- he might have added, "and the piers of the Church of S. Sophia beneath them", when he would not have said too much!

The mighty structural innovation, attempts at which on a s small scale, for example preceded the Byzantine churches, was the form of the supporting piers, the addition of a cylinder, admitting light , and the placing thereon a dome in two shells with a lantern, all in dimensions previously unknown to arch-

architecture. The height from the pavement to the apex of the lantern in the Cathedral of S. Peter amounts to 403.6 ft., t thus more that double that at S. Sophia. If the details of t the internal architecture were somewhat more modest, no building in the world would equal it in proportions, beauty and magnificence of decoration. The light falls too abundantly in the noble and mighty interior, allowing the finest details of the oranmentation and of the mosaic colored decorations to be recognized, which is everywhere happily harmonized. No mystic gloom thrills through the interior; everywhere is the southern sun, that shines on and warms the splendor of the materials, the gilding and the mosaic pictures. Dignity and solidity from the vertex of the dome to the floor, and the feeling of elevation and beauty penetrates the observer and warms him of the nearness of the Deity! But whoever desires to see the interior even increase in magnitude, will await one of the great church festivals. The side windows are draped and admit but little light; only the dome lavishes daylight from above, but not to its full extent, for the windows of the lightAbringing drum are covered by light fabrics, -- then the dimensions oncrease to the unexpected. If then the wax candles are lighted on the continuous cornices, to light from right and left the altar of the ciborium, which is itself transformed into a sea of light, the two colossal chandeliers that support more than 10,000 candles, the domed interior, then will he be contented, who desires to retail the mystical within a House of God. On such festal days the exterior is not inferior; with the growing darkness it gleams with ornamentation by lights. The principal lines of the structure, the ribs of the dome, the cornices of the broad colonnades shine with the silver light of small lamps -- the so-called "silvery illumination"; with the stroke of a bell at ten this passes into the "golden", when as by a magical stroke between the small white lights are inserted great orange ones, and on the lantern rises the cross of Christianity gleaming afar! Thus I beheld the scene for t the last time in the year 1866. But whoever as a serious man would behold the grandeur of S. Peter's externality, let him wander on the Janiculum, and take his place beneath the evergreen oaks, that rise above the wall of Villa Pamphili-Doria, and look toward it. Like an island lies the Vatican group be-

before him, from which rises the dome almost in general elevation and with the most beautiful outline in the world, which the master Michelangelo conceived, and could even fix in a w wooden model before he closed his eyes. What he conceived, he was forbidden to behold in the completed work!

As if cast in bronze, stands S. Peter's structure against the blue sky, growing upward from the earth gleaming in violet and yellowish-brown, in the distance are the misty heights of the Apennines with the notched Soracte and the snow cover-
76/ ed caps of Mt. Leonessa, which terminate the picture, a view of the grandeur, earnestness and beauty of a work of man, never again attained, silent because unsurpassed.

527. Massiveness of the Interior.

According to the foregoing, it was the massiveness of the interior with which the Renaissance architects believed they must first reckon, and justly first of all, if they did not lose the purpose of the building, and wished to affect the minds of believers by this might. And they succeeded like few others, even if also the exteriors fell short in many cases.

528. Ecclesiastical Style and Treatment of Forms.

As the antique knew no ecclesiastical style of architecture, just as little has the Renaissance one to exhibit. "In the s south greatness and beauty are holy of themselves, and true art is noble and pious of itself; for already the endeavor after perfection elevates the soul to devotion, when it approaches and unites itself to God". (Words of Michelangelo in 1549).

The form expression, like that of secular buildings, is here borrowed, misunderstood at first, later imitated from the dryness of the antique, then degenerate and running the same course as in the ancient time, where the production of new forms of details was not excluded, to which reference has been made already.

Pointed, segmental and round arches, as well as oval arches, were employed for spanning openings and as lines of vaults, and also the horizontal architrave -- that first named mostly only in structures of the transition style and of the early Renaissance, where also the details are still under the constraint of the mediaeval form expression. (See the view of the facade of the Cathedral of Civita Castellana, a work of the Cosmati, dated 1210).

762 From Early Christian art, from Early Christian church designs in Italy must proceed the following considerations, since they were the first places in which the followers of the new religion gathered for a common veneration of God. What was t taken from them, what was added thereto by the Romanesque, a and what by the Gothic middle ages?

529. Orientation.

A liturgical rather than architectural question is that of the orientation of church buildings. Where free space existed, men adhered to the line of direction of the longitudinal axis from East to West, taken from the antique temples, also in t the first Christian Houses of God, when in Rome the altar was mostly placed at the western end, but on the contrary in Ravenna at the eastern; the latter arrangement formed the general rule in the middle ages. Was it also followed in the Renaissance? No; adherence to it could no longer be strictly obeyed already on account of the fixed subdivision of the interiors of cities, by the arrangement and location of the course of the streets and open places. It soon exhibited numerous e exceptions; but still there are enough famous examples to continue the rule. In Rome Church Gesu, the Pilgrimage Church in Loreto, in Florence S. Spirito and S. Annunziata, in Mantua S. Andrea, in Padua S. Giustina and S. Carmine, in Venice S. Giorgio Maggiore, S. Salvatore,and many others are orientated. Accurate statistics concerning orientation have only been collected for the churches in Rome, in which all directions of the compass are represented!

The basal scheme -- the Early Christian basilica with three aisles -- to which mediaeval architecture also firmly adhered, in great part continued for the Renaissance. The scheme of t the moderate transverse aisle was retained, such as Romanesque art had established; likewise the arrangement of the dimensions between the supports and those of the bays in most cases were assumed according to the Romanesque customs.

530. Church Plan; Basilican Arrangement.

The basilican plan with its united internal perspective was especially suited to characterize the House of God as a long structure; it became in the plan a rectangular form with strongly expressed predominance of the longer sides, and by subdivision by open arcades into an unequal number of aisles,(1,

3 and 5), where the middle one always remained wider; the ending of these is mostly formed by a semicircular apse.

The origin of this architectural idea must be regarded as first found by Leo Battista Alberti in the Roman legal basilica, a conception later opposed by another, according to which the church basilica is to be regarded as a product of Christian worship and intellect created in the time of Constantine, a view to which Hübsch particularly adhered. But in the year 1847 it first experienced a contradiction by Zestermann, who placed the germ of the Christian basilica in antique Roman palace architecture, on the argument, that the house of a Roman patrician among its parts regularly possessed a hall w with a particular form and name, the basilica.

To these three theories Dehio [258] opposed a fourth, to which one would gladly assent, on account of its logical and technical statements. Only in the houses of citizens could the first Christians have assembled, and therefore from the dwelling were taken the parts of the basilica. The tablinum became the seat of the director as an apse; the wings became the transepts, in which the deacons and deaconesses gathered; the atrium became the nave, wherein believers attended divine service. For those collected in the atrium or the columnar peristyle must be provided protection from wind and weather, without t thereby being compelled to accept a darkening. The system of the compluvium was therefore to be retained no longer, and t the covered atrium of Vitruvius appeared in its place, where the introduction of light occurred in the really antique way by a superstructure with side lights, as the case in the hypostyle halls of the Egyptians and Assyrians, as well as for the Greeks of the Alexandrine period. The exterior above the cornice of the peristyle formed an elevated wall of the main aisle with windows, which was either covered by a horizontal wooden ceiling, or by the visible so-called "open" framework of the roof.

Note 258. Dehio & Von Bezold. Die kirchliche Baukunst des Abendlandes. Stuttgart. 1884.1901. p. 63.

531. Plan with single Aisle with high side Lights, three and five aisled Planes, and their Mode of Lighting.

In general the forms appear as the plan with one aisle with high side lights, those with three and five aisles with elev-

elevated light at the sides of the middle aisle, and with windows in the walls of the side aisles. The insertion of galleries in the side aisles remained principally an eastern arrangement, but which occurs occasionally in the West; as specifically western is to be termed the plan of the transverse aisle.

532. Basilicas with Piers and with Columns.

Vestibule, nave and choir form the parts of the basilica, an arrangement to which the early middle ages and the Renaissance also remained faithful. Piers and columns alternate in both modes of construction as supports of the clearstory walls. As columnar basilicas are mentioned as examples the two churches of S. Lorenzo and S. Spirito in Florence, as pier basilicas, the Cathedrals in Udine, Treviso and Pavia.

533. Vestibule.

The separating vestibule generally went out of use about t the end of the first millenium (1000 A.D.); where such a one became ruinous, it was no longer restored. The Renaissance t took up the idea again for some buildings, and embodied it in a most interesting way in S. Annunziata in Florence, in S. M Maria Maddelena de' Pazzi there, at the Parish Church S. Lorenzo in Chiavenna at a great scale, where in the middle of t the forecourt rises free the slender bell tower; then at S. Maria at Abbiategrasso, in S. Sisto at Piacenza and other places. Thus it undertakes here nothing new in church architecture; it merely repeats old instances, yet only separately, again in changed form and in a splendid manner.

Just as the atrium on Early Christian basilicas were transformed to simple vestibules (S. Lorenzo f-t-W, S. Giorgio in Velabro at Rome and others), this procedure was also completed in the Renaissance, indeed in some splendid examples, such as at the Cathedral in Spoleto, connected with the arrangement of two pulpits for preaching, in classical manner at S. Maria in Navicella at Rome, as shown at S. Maria della Grazie in A Arezzo (see plan in Fig. 706), at the Church alla Madonna del Pozzo in Empoli (see view in Fig. 707), at S. Annunziata in Florence, and at S. Maria presso S. Celso in Milan (see Fig. 80). A plain vestibule with three arches, placed between two towers, was built at the Incoronata in Lodi; an entirely closed vestibule only accessible by a doorway was executed by t the Renaissance in a splendid manner at S. Umilta in Pistoja,

and more simply at S. Sebastiano in Mantua.

From the late time should be mentioned as the most magnificent example a work of Fansaga (1591-1678), the vestibule of the Sapienza in Naples (Fig. 708). For a direct extension of the flight of steps to the portal of the elevated church, space was lacking, wherefore the entrances to the vestibule were very skilfully placed at the broad ends and the steps were c carried up inside this.[259]

Note 259. See Kohl, M. Tagebuch einer Italienische Reise. Stuttgart. 1866. p. 229.

But yet more the original plan of the forecourt is reduced, when it is limited to the form of a massive archway at the e entrance portal, that was also previously employed by Romanesque art, and for which we have examples on churches in upper Italy and in the largest way on the gable facade of S. Maria at Abbiategrasso. There the enclosure is formed by side walls with columns in two stories set outside them, which is covered by a semicircular tunnel vault and a gable roof over this. This motive of the triumphal arch only too massively fits into the older low arched porticos surrounding the court.[260]

Note 260. For a representation of this, see Strack, H. Central- und Kuppelkirchenbauten der Renaissance in Italien. Berlin. 1882. Pl. 26 and also Fig. 705 of this volume of the Handbook.

For facade architecture the elevated middle aisle remained the rule, as soon as the plan with several aisles became common, both for three as well as the five aisled development. In the latter the two side aisles at right and left of the m middle aisle were brought under one roof, (see S. Paolo f-l.m in Rome), or these roof slopes were also stopped against the raised walls of the aisles. (See the semigothic Church of S. Trinita in Florence).

Churches with but one aisle, such as mediaeval art frequently produced, also remained by right in the Renaissance and were even preferred. Such wit two aisles of equal height and equal widths (two-aisled), such as the Gothic produced in the Tyrol and in north Germany, are unknown to me in the Italian Renaissance; also such were built with but one aisle, sometimes north and sometimes south of the principal aisle, sometimes lower, and sometimes of the same width as the main aisle.

On this side of the Alps, these churches mostly belong to the mendicant orders, and the side aisle was arranged opposite t the pulpit for reasons of economy and to create space for the congregation.

768 534. Hall Churches.

Against another innovation created by the middle ages, the so-called hall churches, aisles of equal height under one roof, the Renaissance was tolerably reserved. Among the few hall c churches are to be named:-- S. Maria Annunziata in Camerino in the Mark Ancona, and the Cathedral in Pienza built by Rossellino, an unfortunate attempt, which is aided by stilted arches in the side aisles, but on the other hand in the middle aisle places the centre of the arch somewhat lower than the impost moulding.[262]

Note 261. Dehio & Von Bezold (Pl. 534 is incorrect in regard to the arrangement of the vaults in the transept.

Note 262. Published in Geymüller; Rossellino. Pl. 11. -- And Laspeyres. Pl. 49, and Figs. 712, 713, of this Handbuch.

Hall churches presume vaulting throughout, that was also employed by the Renaissance, while the basilican design with v vaulting allowed for the side aisles the horizontal wooden c

769 ceiling of the middle ages, as well as the vaults in all aisles. In all cases the side thrusts of the vaults were either directly resisted by the insertion of iron or wooden arches or tie-rods, or by wall masses opposed thereto in the form of buttresses, struts, flying buttresses, or by both means together, if the construction were not entirely trusted. In all cases the southerners were animated by a greater trust in God in the solution of this statical question, and were also mostly guided by a more correct feeling on the ground of what they daily saw before their eyes, which they furthermore studied, observed and measured.

535. Cross Sections of Gothic Churches.

Compare for this purpose the mediaeval buildings in Figs. 709, 710, 711, the cross sections of churches in S. Denis, of Bonpont, and of S. Maria Novella in Florence. The greatest span of the middle and side aisles is shown by the last church with the least thickness of walls. On the contrary, what wall masses were employed by the French architects of the same period in contrast to the Italian masters, to obtain the same

stability! With what plain and simple means was the same question answered in Florence! On which side is to be found here the principle of obtaining with the least possible use of material the greatest stability and strength! According to the examples chosen, certainly not on the side of the inventors of Gothic!

The Italians likewise in basilican designs never placed the attachment of their flying buttresses or piers so high, or even extending to the height of the roof cornice of the middle aisle; they extend but little above the imposts of the vaults in S. Anastasia in Verona, on the Florentine Cathedral, the Cathedral in Como, at S. Petronio in Bologna (even if they also there are increased to a colossal depth by the partition walls of the chapels), and in S. Francisco there.

Opposed to the middle ages there prevails in the Renaissance in the vaulting of the aisles greater boldness with the use of less material, and a more highly developed feeling of spaciousness. But by this were also already animated the Gothic masters of the Milanese and Florentine cathedrals, aus well as the principal Church of S. Petronio in Bologna, when they adopted 52.5 to 57.4 and 59.1 ft. for the vaulted middle aisles of their basilicas, when in Amiens, Strasburg and Cologne, men did not go beyond 45.6 ft.

536. Transverse Aisle and Transepts.

The transverse aisle of the old basilicas reappears, strongly and effectively in the mediaeval churches of Italy in two prominent examples, the plan of S. Maria Novella (Fig. 714)[261] and S. Croce in Florence, and was repeated by Brunellesco in S. Lorenzo at Florence (Fig. 715) [263] in his new style expression; it was carried further in the arrangement of the plan of S. Spirito in Florence (Fig. 716) to the transepts, where the longitudinal and transverse aisles intersect and their a arms are extended beyond the intersection. The Latin cross w with three equal and one longer arm is here decidedly expressed.

Note 263. Dehio & Von Bezold. p. 25).

537. Altar Space and Chapels.

For the altar space,"the perspective point of view",the soul and master of the entire plan", [263] the semicircular form is normal for the old basilicas; in the middle ages this must

yield to the rectangular and polygonal, but it came again into full honor in the Renaissance, even if for it continued t the form of polygonal exterior of the enclosure, usual in Ravenna and Byzantium (dei Servi in Siena), as well as masking by a rectangular enclosure or the regular rectangular internal and external shape, as employed in S. Lorenzo(Fig. 715).

But one altar space no longer sufficed even in the Early Christian period; men sought to secure others in similar endings of the side aisles (see S. Pietro in Vincoli in Rome, C Cathedral in Parenzo), and in the middle ages then the "cumulative veneration of saints" required in each larger church a multitude of altars (the old sketch plan of S. Gall,[264] already gives 17 of these), for which place could only be found along the side walls of the church, or by continuing the side aisles around the altar space or choir, by which resulted about the middle of the 12 th century a series of small chapels (chevet chapels). From this necessity,"not for the better accomodation of a procession",must have originated these arrangements, and they were likewise utilized in the Renaissance.

Note 264. The old original drawing is preserved at this time in the library of the monastery at S. Gall, but is freely shown, though photographic reproduction is forbidden. An instructive mode of the design of the monastery is preserved in t the Art Museum, and is to be seen at any time. Also see the representation of the original drawing in Part II, Vol. 4, H Heft 3, of this Handbook).

Many of the single-aisled churches (S. Francisco al Monte in Florence, S. Felicita, Cathedral in Montepulciano, S. Maria dei Servi in Borgo S. Sepulcro, S. Domenico in Recanati, S. Andrea in Mantua, etc.) show the chapels along the side w walls of the aisle, and also similarly those with three aisles (Fig. 717);[265] S. Maria della Catena in Palermo, also the Cathedral in Pavia (Fig. 718), and before all S. Lorenzo in Florence as well as S. Spirito there, where the chapels surround not only the external walls of the nave, but also those of the transepts and choir, if one can speak of such here.((Fig. 716).

Note 265. Reproduced from Hittorf & Zonth.

538. Dome over Intersection.

The crossing of the transverse and longitudinal aisles dir-

directly leads to a special architectural distinction of this point; it is so important as to require accenting, which occurred in S. Lorenzo and S. Spirito in a tasteless manner by small domes, but for entirely vaulted churches with the form of the Latin cross was adready attempted in a grand manner d during the middle ages in Italy; on S. Maria del Fiore in Florence and on S. Petronio in Bologna.

The crossing was here to be marked both externally and internally by a great dome, and indeed comprised in the dimensi-
772 ons of the three aisles together. The idea matured in the Gothic middle ages in Italy, and could alone ripen there, where the great domed structures of the ancients gave the impulse to similar works. At S. Petronio it was not completed, but t the design is still preserved to us in the model. One of the grand churches in the world would be created by its completion, a dome which with 131.2 ft. diameter, would have nearly attained the dimensions of those of Florence and of Rome. The eight supports of the dome in the plan, two of which were constructed as parts of the present church, appear to be far more beautifully subdivided and treated than those on the substructure of the Florentine Cathedral; but whether they were able with the chosen section to support the weight of the dome, a and to hold its forces in equilibrium, must be doubted.

Likewise the Pilgramage Church of Santa Casa at Loreto (Fig. 719) should be placed here; for it is and remains from the House outwards a Gothic structure with "amazing" arrangement of plan and the same basal idea; the Latin cross with a dome over the crossing, which is supported by eight piers and has a diameter equal to the width of the three aisles. (93.4 ft.). Likewise here were the supports made too weak, a defect that Sangallo (Sept. 29, 1499) later sought to remedy, but which Bramante in 1509 first entirely removed.

For the masters of the Renaissance these designs remained with great and permanent influence, and the plan of Loreto w was doubtless a model for the design of Christoforo Rocchi f for the Cathedral in Pavia. (Compare the two plans in Figs. 718 and 719, where in Loreto special reference is made to the beautiful arrangement of the four chapels on the diagonals of the transepts).

539. Crypts.

539. Crypts.

In the time of Constantine it was usual in Rome to erect m memorial churches over the graves of martyrs, where the grave was placed in intimate connection with the altar; i.e., a small subterranean vault was so placed beneath the high altar, that one could look down into it. From this Early Christian "confessio", connected with the plan of their catacombs, proceeded the late Early Christian and early Romanesque crypt -- the complete lower church with altars, which was then arranged beneath the elevated choir.

The original burial place of the martyr was not concerned, but rather bones brought from elsewhere were deposited in the church, and then men were satisfied by their exhibition above ground and viewed them through a vertical front wall, or made the altar itself a receptacle for them. "The tomb was separated from the permanence of the church" which was made a ground principle in the Gothic period, and was also adhered to by t the Renaissance.

The Protorenaissance showed an echo of the crypt design in the Church S. Miniato al Monte near Florence, and in the Cathedral of Civita Castellana, while the early and late Renaissance departed therefrom, following the Gothic. The altar table became a sarcophagus for the saint, or where the confessio was given, the Renaissance cared for architecturally beautiful entrances to it, as for example in a perfected way as shown in S. Maria Maggiore and in S. Peter in Rome.

540. Towers, their Position and Architectural Treatment.

Towers are not original additions to Christian church architecture. They are still foreign to the 6 th and 7 th centuries, and indeed were first distinctly shown in the 8 th century in Rome and Ravenna. They either served to receive stairways to the galleries and the attics, or they were built as watch towers. The oldest bells were small and mostly hung in roof turrets. With the introduction of bells heard at a greater distance, the towers were taken for their support. (See t the Section on Clock Towers).

The opinion that they did not belong to the parts of the c church, men accepted in Italy from the earliest time, and therefore they later also placed them beside the longer sides of the basilicas as detached buildings. This location was

typical, and was not abandoned in all succeeding phases of architecture in Italy.

While on this side of the Alps architects and the people w were enthusiastic for the extremely high architectural characteristicsl and looked with pride on the attainment of having the towers organically joined to the church, which they carried to a height of 515 ft. with a surpassing luxury of external architecture, and yet paraded many of these additions, n not ecclesiastical, men in Italy continued faithful to the o opinion of the 8 th century, and the new art of the Renaissance made scanty use of this purely external gift of the northern middle ages.

541. The Latin Cross with Dome over the Crossing.

The enhancement of the might and splendor of the interior is later as earlier the principal thing, as the further pursuit of the structural idea laid down in the Cathedral of Florence, in S. Petronio in Bologna, in the Pilgrimage Church of Loreto and the Cathedral at Pavia -- the Latin cross with a great dome over the crossing, and the high aim continued, for which purpose the addition of great towers was not required, or only such of modest dimensions.

The mediaeval and richlytreated bell and clock towers in the cities of upper Italy during the Romanesque period, the towers in Cremona, Pavia, Crema, S. Gottardo in Milan, etc., are all structural masses not organically connected with the nave; the Gothic Cathedral in Florence places its overrich c campanile as a free structure at its side, dispensing with t the intended spire 93.4 ft. in height; the Cathedrals in Milan, Orvieto and Bologna also stand as church buildings of the first rank without these accessories.

542. Crossing Towers.

Where men still desired to show afar the "finger of the Lord God", and had neither the necessary enjoyment nor courage for a tower or dome, they decided for a combination of both, for a crossing tower, as in Chiaravalle or in Citta di Castello, and constructed in the richest manner as a Renaissance work on the Certosa near Pavia.

Circular or square in cross section are the Early Christian towers in Ravenna, and exceptionally rectangular are those in Rome. To these two forms adhere most of those of the early

Renaissance, and on this Early Christian basis indeed must that of S. Spirito in Rome be termed one of its best creations; on a solid substructure stand four stories, each enclosed by colossal pilasters.

Contrasted with this small Roman brick tower may be the massive, but unfortunately never completed campanile in Ferrara, finely constructed of red and white marble. It likewise exhibits the bisection of the facade surfaces, but no combined c low stories, rather high ones subdivided by bold architectural members (Fig. 721), in its way being one of the most dignified towers of the entire style, even if not entirely free
775 from a slight flavor of the recently ended art period. On its basis would have been possible a spirited extension, more easily than by a regular repetition of correct columnar orders. And this I may place the Venetian Campanile of Madonna dell' Orte (Fig. 722)[266] higher in its simplicity and the closed lower stories, than most of those covered by columns or pilasters of a later time.

Note 266. From Cicognara.

776 Leon Battista Alberti gave a recipe for the bell tower as an isolated structure, wherein he preferred the Ravenna form, and crowned it by an open temple and a domical roof, while he enclosed it by a square portico in the ground storya (Fig.723).

The design may pass as spirited; but it has too little life. To it adhered the fresh Sanmicheli with his tower at S. Micheli near Verona, that on a square substructure shows in another story great Palladian windows, over this being an octagonal story with columns at the angles, above being as a termination a circular temple with dome and lantern. (Fig. 724).

The two towers of S. Spirito in Florence (Fig. 726) and that of the Madonna di S. Biagio in Montepulciano (Fig. 725) are
777 simpler representatives of the style, where those of S. Spirito (begun by Baccio d'Agnolo (died 1543) and completed after his design under Cosimo I) are conceived with more originality, and do not stick to used motives, like those of the earlier Sangallo. Like the connected church structure, it may be "one of the most perfect architectural works of the high Renaissance," but it lacks a certain warmth. It is only true, that in spite of its twin brother carried out a few yards in height, the tower stands admirably in the entire group, and

According to Laspeyres (p. 19, 20) [267] "its worth especially consists in this, that in contrast to so many projects for t- towers, on which the Renaissance masters exhausted their gifts in design, that it had to make the great step from paper to stone so quickly, that nothing essential was taken from the original idea of its originator. A master tower of the art o period, in which may be said to be expressed the creed for tower structures". (Fig. 725).

On a square mediaeval substructure, transformed into an octagon as in Montepulciano, rises the superstructure of the tower in Modena (Fig. 728), which remains a sound and interesting creation, though not entirely free from mediaeval nature.

Giuliano da Sangallo furnished for S. Lorenzo in Florence the design for a clock tower, [268] which does not belong to the most fortunate created by that master; that it was not built after this is scarcely to be lamented.

Note 268. Geymüller. Giuliano da Sangallo. Pl. 2. Fig. 6.

As the last link in the chain may yet be mentioned the square tower of S. Maria del Carmine in Naples (restored in 1769), likewise changed above into an octagon, which at least is picturesque, has a pretty effect (Fig. 729) and is also well developed.

The tower of the Church S. Maria del Carmine at Siena must not remain without mention (Fig. 727), on account of its depressed form.

As works of the Barocco style may pass the double towers of S. Alessandro in Milan. What Maderna designed for S. Peter in Rome were pretty pavilions on a wide substructure, but not towers, [269] and what Bernini gave certainly did not lack picturesque charm; "the graceful forms of the towers, the open portico-like treatment of the stories, the avoidance of great wall masses, [270] are ever to be praised and recognized in a high degree; but the solution appears somewhat theatrical, and too little earnest in comparison to the other parts of the o building". The same judgment falls to the flanking towers of the famous Superga near Turin. (By Juvara, 1717-1731; Fig. 858).

Note 269. Illustrated in Gurlitt, C. Geschichte des Barok in Italien. 1887. p. 337.

Note 270. See Gurlitt, also, p. 351-353.

Likewise what master Vanvitelli did on the bell tower near

the Santa Casa in Loreto did not increase his fame. (He created the two upper stories and the bulbous roof).

Guarini's tower on S. Gregorio in Messina is heavy, and its concial spire surrounded by spiral ornaments, crowned by the papal tiara on two crossed keys, is a "Barocco folly".

To this late experiment may be contrasted an earlier one in Renaissance art by Bernardo Rossellino,[271] the bell tower at the Cathedral in Pienza completed in 1463 (Fig. 780). Dry and poor is the beginning, unskilful the termination.

Note 271. See Geymüller, Pls. 11; Laspeyres, p. 18, Pl. 10.

On the other hand, greater interest remains to the fanciful forms of the towers of Borromini near S. Carlo alle Quattro Fontane, and especially those of S. Agnese on Piace Navona at Rome.

If the proposals of Maderna for the towers of S. Peter were doubtful additions, and that created by Bernini is designated as theatrical, the art value of the latter is thereby not questioned. The assertion that they would have injured the effect of Michelangelo's dome, or even have concealed this, is scarcely conclusive. They are placed so far from the dome, a and also stand outside of the view of the small flanking domes, that injury of the mighty central dome by the towers could not be stated; already by the plan and form of the street of acces and of the great elliptical Place, as well as by these heights and strong opening of the upper masses, as well as t the graceful endings of these curved roofs, this is impossible (Fig. 731); the main facade with the central dome, the two side domes and the substructures of the clock and bell towers, represented on a photograph. The added lines give about the geometrical elevation, and the bell towers are represented a according to the statements of C. Fontana and the drawings of Bernini).

The plan of the arrangement of the central dome, the two s side domes and the towers is given in Fig. 732. Maderna utilized the towers as terminations of his vestibule and the loggia (Fig. 732), and Bernini seems to have also felt this need, when he made the unfortunate attempt to erect them. (For the form of the Place, the plan of the colonnades and the street of access, see Fig. 699, and for the plan of the Bernini towers, Fig. 734). Likewise Carlo Fontana appears to have been

convinced of the same, when he made proposals to strengthen the left side tower, that had sunk, and made them known (Fig. 732), (according to his work, "Templum Vaticanum et ipsius Origo". Rome . 1694. p. 267). He also took up the matter earnestly, before he proceeded to take down the bell tower, and a substatute was sought and found in the wretched ending with the dial plate on the attic. The feeling of a necessity of the arrangement of the towers in connection with a great dome already made itself felt in the maker of the wooden model for S. Petronio in Bologna; Peruzzi foresaw four towers in his d design for S. Peter in plan and text, and the medals for S. Peter's building struck under Julius II and Leo X exhibit four towers, which extended above the height of the cornice of the dome; the still existing great wooden model of Antonio da Sangallo has four round towers, carried to an equal height w with the dome, while in the design of Michelangelo according to the drawing of Duperac (1569), at least the flanking domes appear to extend higher, than they were built. (See Letarouilly-Simil. The Vatican).

G. Alessi erected at the domed Church S. Carignano near Genoa the slender angle towers, which were also foreseen in the original plans, even if their height and external form were not entirely authenticated, or may be attributed to another master (Fig. 735). Bramante, A. Sangallo, Alessi and Bernini counted on towers to accompany the central dome, instead of which the architects of Mohammedan mosques place their minarets; Michelangelo declined them for the central building.

543. Crown of the Dome.

The domes, in addition to the admission of light through t the windows in the drum, likewise received overhead light by means of a high lantern structure after Byzantine models, th that the Protorenaissance also employed, to which the youthful Renaissance, its advanced and latest phases remained faithful; a last echo of verticalism for the central structure.

544. Lantern Addition at the Vertex.

Simple and clear on the great domes of the Florentine Cathedral of,the Church of S. Peter in Rome, the dome of S. Maria da Carignano near Genoa and others, it appears overloaded in details with the appendages to the domes of the Roman late R Renaissance and the Barocco, particularly at the Sapienza and

The Church S. Andrea della Valle in Rome (Figs. 736, 737, 738, 739),[272] that also retain the plan of the dome.

Note 272. In the representation of this, also the construction of the masonry of the columnar shafts and capitals, of the architraves and cornices in bricks is also shown, as explanatory additions to Section V on brick Buildings.

545. Organic connection of Bell Towers with the Nave.

To the Early Christian custom of erecting one or two bell towers without any internal or architectural connection with the House of God, the church architects of the Renaissance in Italy also adhered at many small and large churches (Florence cathedral, S. Biagio at Montepulciano), but which did not exclude the attempts already made on this side of the Alps in the middle ages to connect organically the properly secular part of the structure with the consecrated House of God. The Barocco period particularly busied itself, as frequently mentioned in this volume, with this problem. The first proposals go back to Sebastiano Serlio (Figs 740), who by the suggestion of a vaulted portico, that was itself enclosed between two towers, created a connection and thus allowed the facade to appear more impressive. Borromini proceeded very skilfully in his main facade of S. Agnes in Rome. The entrance facade is closed and recedes somewhat behind the towers, which themselves are again in the continuation of the line of the connecting wall, in the form of quadrants connected with them (Fig. 741)[273] (742)[274]. Bernini did not need to conceal his adjacent fountain statue on the Place before the view of this facade; he had done many things no better than his rival Borromini, whom the envy and rivalry of artists drove to death.

Note 273. C. Gurlitt gives in his Geschichte des Barockstyles in Italien (Stuttgart, 1887. p. 383 et seq.). a peculiar text to the plan of Letarouilly of S. Agnes on Place Navona in Rome, when he says: "The nucleus of the plan of this Church forms a square, whose cut-off angles are filled by niches. To this are attached short transverse wings like a Greek cross." (Sic !). The principal merit of the church is to be attributed to Girolamo Rainaldi ... At the sides rise towers certainly designed with genius, each in two other stories with a stumpy stone spire. The refinement, by which from the lower "square" always develops the "circle" as the basis of the upper

story. Without the preliminary work of Bernini on the facade of S. Peter, this would have become impossible. (This seems probable, and I might concur in it). The towers were completed by Giovanni Maria Baretti, indeed according to the original plans. For it is not to be thought, that these came from two different "hands" --- brains certainly played no part with th these men !

In the edition of the Cicerone for 1884, p. 283, Burckhardt says, that "Borromini built in Rome towers on an oval plan ((S. Agnese on Place Navona), others with two convex and two concave sides (Monastery of Chiesa Nuova), and also such with a spiral superstructure (Sapeanza), finally as a manifestation of his style principles the tower of S. Andrea delle Fratte".

The author mentioned for these statements indeed regards t these conditions as absurd, but which exhibit method and artistic security; Gurlitt then holds the towers of S. Agnese to be circular, Burckhardt -- Bode explains them as oval in plan. Both seem to miss the understanding of the formal treatment and the statical legitimacy of the towers mentioned.

545 Again closed with a great flight of steps placed before it is the entire facade of S. Trinita de'Monti in Rome, where the two towers are set in the same plane with the facade wall (Fig. 743). The facade has an imposing effect on the Place mentioned, and with the elevated position of the Spanish Stairs and the treatment of its large surfaces, forms a happy t termination of the street leading to it.

An attempt to organically connect the bell towers with the nave was made first by Bernini at S. Peter in Rome under colossal conditions; if he also technically obtained a failure, and the impulse to this in principle is to be referred to Serlio, as is stated, yet it must be considered a great and fertile cast in the architecture of the Italian Renaissance. The decision, that they did not understand how to combine towers and nave into an architectural whole, appears untenable according to the examples shown.

546 Simple Bell Turrets.

Recurring to small things, some examples will be mentioned, that show how little the architect and owner could be satisfied with in affording the church bells a shelter.

788 On the little old Church of Maggia-Aurigeno is built a stone bell tower on the entrance facade with unassuming appearance; in Ragusa is the same motive, somewhat more richly treated, placed on the closed gable facade, and in Isola Farnese (near Rome) appears half concealed a massively built small square tower of stone with pointed roof, rising from the roof. (Figs. 744, 745, 746).

547. Rural Churches.

Beside these stand an entire great series of rural church buildings in Italian Switzerland at Lake Maggiore and at Lake Lugano in the Canton Tessin, that I think of treating more f fully in another place. Here may be named only the charming village churches in Cevio in the Maggia valley (Fig. 747), S. Antonio and S. Francesco in Locarno (Figs. 748, 749). What t they present is simple and plain architecture, picturesquely constructed, partly having domes over the crossings, with towers of rectangular plan with low hip roofs or higher octagonal spires. These are covered with metal, the other parts of
789 the buildings with rough granite slabs, the walls plastered down to the plinth. No ornament adorns the architectural members. The masters well knew, that they would not succeed with petty external ornamental work in presence of the grand Alpine nature, and that such must be rejected in the effects.

They are mostly interiors with a single aisle, but as soon as one enters the interior, he is surprised to see how far t the art design extended. Here man is with his invisible Creator, whom he desires to requite in gratitude for everything bestowed on him there, indeed in the best and most beautiful form. He decorated walls and ceilings with stucco, paintings and gilding; he will not be stingy toward the Deity, as one of the believers once assured me. He gives up the contest with mighty nature. "Shame, how appears a human work, so bad and such a black village, a heap of shingles and stones, in the midst of grand and magnificent nature! Great boulders and other stones on the roofs, so that the storm may not tear the miserable coverings from their heads! Where one only meets mankind, he might flee from them and their wretched works".
790 (Goethe, Briefe aus der Schweiz, unter Werther's Papiere gefunden. III. 1860. Of the value of the interior and its well= weighed and justified contrast to the exterior, he says noth-

nothing. And yet both will be criticized, when justified.

These works rise higher artistically in the villages, which lie on the shores of the lakes or on the hills, where they d dominate areas of water, as for example in S. Maria del Sasso near Locarno (Fig. 750), near Cannobio on Lake Maggiore (Fig. 751), or the little Pilgrimage Church in Campione with its terraces and flights of steps looking down on the surface of the water (Fig. 752). The subtropical vegetation at this place combines in the most beautiful manner with the unrestricted forms of a delicately treated Barocco.

On the other hand, a chilling contrast is formed by the dry, galleries of the polygonal dome of Cannobio (Lake Maggiore), cut from granite slabs with their primitive details, still i interesting in motives!

As extending somewhat outside these limits, should be mentioned the proudly rising Church in Vico Morete on the steep shore of Lake Lugano, with the tower at the side, the high dome and the gable facade adorned by statues. The building rises before the blue surface of the water and the forested shore of the lake, and can tolerate the richer architecture with this background. The interior has sculptures from the school of Amadeo.

Richer than that near Cannobio by the gallery around the dome is treated the one in Brisago, whose small columns and capitals are rude and simple, entirely connected by round arches, likewise roughly constructed of gray granite. (1576).

548. Internal Decoration.

As an example of internal ornamentation may be mentioned t the little Church near Maggia-Aurigeno given in Fig. 744, represented in Fig. 754. One figure on the wall of the choir bears the date of 1416, and elsewhere are given dates of 1527, 1528. The width of the aisle amounts to 22.0 ft., its height to the beam ceiling being 15.7 ft. Very notable is the mural ornamentation of the little Pilgrimage Church near Campione, (Fig. 752), the splendidly executed paintings in the dome, on the walls of the building of a single story, and those contained by the adjacent vestibule accessible from the land side. For the mural paintings in the interior the figures are partly made in low relief in stucco and then painted.

549. Sacred Precincts.

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To these rural churches must accordingly be added those of the sacred precincts. By these are to be understood the small appropriate structures on church lands, the field and wayside chapels and certain cemetery buildings on consecrated ground, which in many cases present something charming with the use of small means, and also artistically perfected, as again found so frequently in canton Tessin, in Lombardy and other rural domains. Here still remains a broad domain for research. The architecture of the Renaissance in Italy does not consist entirely of palaces and cathedrals, but also smaller architectural problems are takin up and studied with enthusiasm, for which may be mentioned as examples the Sacri Monti (Holy Mountains) on the southern slope of the Alps near Vasallo, Orta and Varese, and the Wayside Chapel on the road from Locarno to Ronco.[275]

Note 275. On the different small buildings also see Hahn, D.J. Kunst- und Wanderstudien aus der Schweiz. New edition. 1888. Wanderings in Tessin. p. 110 - 212. -- Very beautiful and worth reading.

Samuel Butler treated these in 1590 and 1594, also a doctoral dissertation by P. Goldhardt of the Polytechnic School in Dresden was devoted to the subject in 1905, and particularly the excursion sketches to the lakes of upper Italy by the students of the Polytechnic School in Darmstadt under Professor Vetterlein (1911) furnished a beautiful addition to it. The general plan of the Sacro Monte at Orta (Pl. 15 of the Darmstadt sketches) and Fig. 755 after that affords an idea of the form and location of the separate structures, also Figs. 756, 757, 758 (after Dr. Vetterlein) give the plan and views of two chapels, rectangular and circular, both surrounded by porticos. (Figs. 756, 755). The average clear width of the interiors are 16.4 to 19.7 ft., they exhibit simple and even solemn development of the exterior, being very interesting little buildings. Also beautiful among them is a well house, whose pointed roof is supported by 8 Doric columns, covering the draw well.

550. Crossing Towers.

With the adoption of the Latin cross as the ground form of the church, in the elevation the crossing of the nave and transepts was plain, as a rule, or architecturally emphasized

prominently by a domed structure. In all dimensions and forms, with and without drum, with steep and with flat outlines, the dome characterized the intersection mentioned, so that the s structure dominated the entire mass of the building, or this was animated by it in only a slight degree. The Renaissance in upper Italy even chose a different means for the same purpose, taking up again a mediaeval motive, the crossing tower, as for example on the Cathedral of Milan as actually executed, the Church in Chiaravalle, the Certosa near Pavia, and in Citta di Castello; beautiful in form and an interesting work, t that likewise in structural respects must also be termed instructive and worthy of consideration, even if all structural considerations are not emphasized therein. The four supporting piers of the tower consist of two detached columns constructed of high ashlars with few horizontal joints, and of two walls at right angles, of bricks faced with ashlars. The effects on these dissimilar supports, that have to support the tower in common, must be irregular and produce dissimilar movements in the upper vaults, arches and enclosing walls, that cannot remain without effect. The great art work was not further repeated, but it yet remains in spite of its defects. In the sixties of the last century (1800), the tower was scaffolded for repairs, and could not be ascended, but now a special permit is necessary for ascending it.

Figs. 759, 760 exhibit the architectural subdivision and afford conclusions on construction after Durelli, G. A. La Certosa di Pavia. Milan. 1863. (Also see Luca Beltrami, La Certosa di Pavia. Milan. 1895, and the very much simpler treatment of the tower in Citta di Castello).

551. Sacristies.

Further, later enclosures or additions, frequently on the north side of the church, but regularly located in the vicinity of the high alter, are the sacristies, that were intended for the use of the clergy, for the preservation of the church vestments, treasures and library. After the 13 th century they were also furnished with altars, and were employed as oratories. They frequently form in the Renaissance splendidly constructed and decorated parts of the church, as shown by those in S. Lorenzo (1426) and S. Spirito (1490) in Florence, 276
which were erected as charming little central buildings, to

with which are connected the names of the celebrated artists, Giuliano da Sangallo, Cronaca, Sansovino and Brunellesco.

Note 276. Also see Losperres. Pl. X.

One of the most extensive designs,must be the new sacristy building of C. Marchioni in S. Peter at Rome (1776-1780), connected with the church by two corridors, receiving in a domed room 49.2 ft. wide the common sacristy, adjoined by 15 subordinate rooms. 277

Note 277. See the ground plan in Letarouilly-Simil, Vol.II, Pl. 58).

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Section XXIII. Single-aisled and Basilican Plans, Treatment of Exteriors and Interiors, with Examples from different Periods.

552. Influence of Early Christian Architecture.

Early Christian church architecture gives as the external architecture the masonry masses materially necessary for enclosing the interior and nothing more. Only the entrance facade receives a richer development, even mosaic ornamentation, as for example on the Cathedral in Parenzo, etc., while the sides and the choir remain in rough construction.

553. Protorenaissance.

The Protorenaissance also proceeded in the same manner at S. Miniato al Monte in Florence. On the contrary the Romanesque and Gothic middle ages extended the architectural members over the entire exterior, even developing a maximum richness on the choir and the sides.

554. Antique and Mediaeval Influences.

As for the palaces, we must here determine different currents, which were influential for the treatment of exteriors. There likewise antique and mediaeval elements are connected with them; the mediaeval system is frequently retained, then clothed with Renaissance forms. (Interiors of S. Maria della Catena in Palermo and S. Francesco in Rimini -- pointed arches on pilasters with broken entablatures and antique mouldings); timidly and gropingly, men attempted to make the antique answer, until they believed they had found in the architectural arrangement of the Roman triumphal arch the proper means of expression for the main facade of the Renaissance church.

555. Antique Tendency.

The antique tendency is followed in a still hesitating way by the little Brotherhood Church dell'Oca in Siena, [278] the Church S. Pietro in Montorio (Fig. 761), and by S. Agostino with basilican plan (Fig. 762), both in Rome. The cornices, doorways and engaged pilasters were also still restricted in details and proportions, but otherwise employed with intelligence, the mediaeval rose window still retaining its rights, until the Renaissance in the facade of S. Andrea in Mantua ((Fig. 763, with plan in Fig. 764), freed itself from every reminiscence of the just ended art period. In a yet higher d degree did this occur on the principal front of S. Giorgio M

Maggiore in Venice, where in place of the precise proportions and of the gabled form of S. Andrea appear the proportions a and forms of the antique Roman temple of the perfected style. The later time broke with the colossal order on the wall surfaces, and took up the two story form of facade, first indeed allowed by the need of an elevated loggia for dispensing the blessing -- Urbi et Orbi -- as at S. Maria Maggiore, the Church of the Lateran, S. Marco and S. Apostoli, All in Rome. S. Peter makes an exception here, where the two stories are found within the retained colossal order.

Note 278. See Geymüller. Francesco di Duccio del Guasto. Pl. 1

It is of particular interest, as for the small single-aisled church facades, to find the mediaeval forms gradually crumbling away and the antique appearing in their places. S. Maria degli Angeli in Siena (Fig. 765),[279] S. Felice in Florence, (Fig. 766),[280] S. Maria delle Nevi (Fig. 767),[279] S. Katerina in Siena (Fig. 768),[281] and the chapel of Palace Turchi at t the same place (Fig. 769),[281] afford a fine series of steps f for the principle. On the facade of the little Church degli Angeli we still find the steep gable, the steep hip roof, the projections at the angles, and between these being the ornamental Renaissance portals. On S. Felice in Florence already more advanced concessions are made to the new style, and on S. Katerina is expressed the completed closed Renaissance. To the main facades adorned by gables adjoin the simpler side facades, with a continuation of the horizontal members accented there, with a regular distribution of the window axes. Blind arcades like the antique with pilasters animate the windowless walls of the side aisles; for the clearstory, men have been restricted to the arrangement of slender semicircular-headed window openings without other accessories. Architrave, frieze and cornice terminate the ascending walls in both cases: in the latter appear short consoles in place of pilasters, as if affording points of support for the architrave (Fig. 772)[282] (view of the side facade of S. Lorenzo in Florence).

Note 279. Laspeyres. Churches of the Renaissance in Italy. Pl. 28.

Note 280. The Same. Pl. 12.

Note 281. The Same. Pl. 25

Note 282. The Same. Pl. 21.

Note 283. The same. Pl. 6.

As Alberti in his palaces arranged the small orders in stories above each other, like the Roman theatre facades, he attempted to carry out the same idea on the entrance facade of S. Francesco in Rimini, judging from the existing remains and the medal of Matteo de'Pasti (1450), (Fig. 771), but he abandoned it again at S. Andrea in Mantua. He was followed by his colleague B. Rossellino at the cathedral in Pienza (Fig. 770). The Barocco period again preferred the smaller subdivision of the height, as shown on S. Alessandro in Milan, S. Trinita in Florence, Church degli Scalzi in Venice, S. Vincenzo ed Anastazio, S. Maria in Compitello, S. Maria della Pace, and particularly Church Gesu in Rome. Likewise on the Gothic substructure of S. Maria Novella in Florence, Alberti knew how to add nothing else than a subdivision by small pilasters with an a antique temple pediment. (Represented in Müntz. Vol. I. p. 407).

556. Facade Forms of Basilican Plans.

For the basilican plan always presented itself a difficulty in the front elevation; the junction of the low roofs of the side aisles with the elevated clearstory. Men had to choose between the solution of the Early Christian basilica, which strictly speaking is no satisfactory architectural solution, or to extend the side aisles across the gable facade in form of a vestibule, when the vestibule has the same shed roof as the side aisles, or to allow the enclosing walls of the shed roof to abut against the gable wall of the middle aisle, just as the inclination of the roof required or allowed. Examples are:-- S. Crisogno (Pl. 42),[285] S. Maria in Domnica, Basilica Liberiana (Pl. 61)[285] S. Giovanni Laterano (Pl.70)[285] S. Paolo (Pl. 80),[285] Basilica Vaticano (Pl. 75),[285] and Basilica Ostiense (Pl. 82),[285], where the Roman half pediment appeared, or the quadrant form for curved roofs. Men could also attempt a something new.

Note 285. Canina, L. Richerche sull' Architetture piu propria dei Tempi Christiani. Rome. 1846).

557. Connecting the Pediment Breaks.

Alberti chose the last way, which also is found in the last phase of the Renaissance, while Palladio adhered to the Roman model. (Fig. 772). The first artists of the Renaissance placed the volute before the shed roof, elsewhere a transition

form on a small scale, here becoming a great one. To make this form more endurableat a great scale, he enlivened the outline by a fine ornamented incrustation, and thus created a classical model on S. Maria Novella in Florence (Fig. 774). This was later transformed into relief, sometimes swelling, sometimes recessed (Fig. 775), extending far horizontally or vertically the favorite motive of the following and especially of the later time, frequently offending against good taste, even increasing to ugliness, and frequently lowering the other details. (Fig. 776, facade of Church Gesu). On account of their lack of taste, the volutes are suppressed in the following representations of the facades so chastely designed otherwise, with reference to the facade of S. Francesco al Monte near Florence, where for the clearstory the like arrangement is retained without volutes. Very much more moderately and b beautifully did Serlio treat the transition to the side aisles in his church design (Fig. 777).

558. Aim and Reality.

It must still be said, that with great purposes, the execution of facades on the most important churches remains incomplete. Not a single important one is there by Brunellesco, M Michelozzo, Rossellino (if his Cathedral in Pienza be excepted), Cronaca and the two elder Sangallos. What Giuliano designed for the facade of S. Lorenzo in Florence,[250] (4 designs), can scarcely be satisfactory. They are even disconnected pieces of decoration, behind which something else might stand just as well as a church. One would scarcely wish to seek a basilican design behind them; an attempt to solve the conflict between the junction of the shed roofs of the low side aisles with the elevated middle aisle has properly gone out of the way. The side facades, so far as their arrangement does not come from the mediaeval period (for example on the Cathedral in Como), remain simple and plain, as the basilicas of Brunellesco show. Without any subdivision of the wall by piers or columns, window succeeds window with regular distances between axes. If architraves extend along the cornices, they b project out little beyond the wall surfaces as at S. Spirito, or at certain intervals, as stated, they are supported by flat consoles, as on S. Lorenzo in Florence.

There is indeed best expressed what the masters of the early

time desired; simple and yet dignified in proportions with t the avoidance of all useless or merely ornamental additions. We see circular windows in the walls of side aisles, tall round-arched ones in the high walls of the middle aisle, and a subdivision by blind arches and pilasters for the external w walls of the circlet of chapels (Fig. 772). [283] The side facades of church dell' Osservanza in Siena have yet only some small round windows (oxeyes) as the sole architectural members besides the console cornice.

559. Mediaeval Tendency.

The facade forms still influenced by the middle ages throughout exhibit somewhat more warmth, and stand near the design of northeners in the matter of church architecture. How far it is here influenced by the power of custom, by instruction and impresion in youth, and how far there remains to it an objective decision, we shall leave without examination. The facts must remain undisputed; we have preferred also to gain t these customs by repeated visits and studies of Italian art monuments, rather than refer to them by increasing knowledge of the innate nature of the Renaissance. And whoever desires to advance church architecture today in the style of the Italian Renaissance, will labor more happily and successfully, if he adheres to these productions, than to the works of the later time, that have been hunted to death. There are to be created still new things filled with life, but nothing in the l latter.

560. Oratorios and Chapels.

And just the smaller Houses of God, oratorios and chapels are those in which things most full of charm are created; for they become "magnificent portals" with their overrich use of ornamental motives, figure decoration and finely executed delicate subdivision. The Confraternita dei Laici in Arezzo, [281] S. Bernardino in Perugia (built 1461), the small red brick f facade of S. Spirito in Bologna, the Madonna di Galliera in Bologna, [283] may testify for this. Compare in this sense the Memorial Chapel of S. Andrea before Gate del Popolo near Rome (Figs. 778, 779) with the Oratory of S. Spirito in Bologna and the little Chapel near Ragusa -- which is the more capable of development, or has the most spirit?

Note 287. Geymüller. Pl. 39.

Note 288. Zeits. f. Bauw. 1864. p.22.

But how strongly work on a great scale was performed, the facade of the Certosa near Pavia proves!"Its motive is independent of the antique orders, and is the Romanesque-Lombard stepped church front with projecting piers and transverse arched gallery: within these fixed forms is sheltered all conceivable richness in wise gradation of the expression. The f facade stands there without any analogy, world-famous by its outside ornamentation, and aside from this perhaps the best conceived of the 15 th century." -- Thus Burckhardt, after he realized, that he had changed his earlier unjust opinion after repeated visits to the building.

Note 289. Willich, H. Kirchenbauten von Giacomo Barozzi da Vignola. Fig. 15. S. Andrea on Via Flaminia at Rome.

Note 290. Burckhardt, J. Der Cicerone. Basle. 1860. p. 120, 121.

The facade is unfinished in the upper parts, the front termination next being wanting(Fig. 780). F. Malaguzzi Valerii p published in his book on G. A. Amadeo (Scultore e Architetto Lombardi, 1447-1522, Bergamo, 1904) on p. 154 a general view of the Certosa "from an engraving". According to this the facade terminates in a low gable comprising the three middle c bays. On a fresco of Borgogne the question is solved otherwise, when there only the middle bay shows entire gables, the adjacent bays having half gables. The entire gable shows an arrangement, that recalls the gable of the Oratory of S. Spirito in Bologna.

561. Facades with special Forms of Roofs.

As a third group are to be mentioned a number of church facades, indeed proceeding from Venice, on which the form of t ther roof is also expressed externally, indeed as correctly as could ever be desired; there the roof of the middle aisle is semicircular or shows the form of the inverted stern of a ship, while the roofs of the side aisles have the quadrant f form. The antique gable and shed roofs are abandoned, a form being chosen instead, which also public secular buildings of the early and late period of the Renaissance exhibit. (Palace del Consiglio in Padua, Palace del Comune in Brescia, called the Loggia, Basilica in Vicenza).

Magnificent is the adoption of the idea, and still more in-

interesting became its embodiment by the peculiarity of the roof construction on the Cathedral in Sebenico (Dalmatia). What this is , is likewise expressed in the facade. Begun as Gothic, carried on and completed in the Renaissance style, built of white limestonewithout a bit of wood! The main and side facades still show Gothicportals, windows and cornices, and the choir windows have a pretty combination of Gothic tracery and Renaissance mullions. A work complete in itself, that deserves the highest estimation. (Figs. 781, 782, 783).

In this group, even if not purely included in the facade s system, are to be placed the little churches in Ragusaand in Lonigo near Verona (Figs. 784, 785), also conditionally S. G Giovanni in Monte at Bologna with the motive of semicircular and quadrant gables in the dryest conceivable forms (the 13 th,and 14 th and 16 th centuries were [illegible]).[291] Likewise this group might be further developed with advantage.

Note 291. An illustration of this structure is found in Colcuzzi-Valeri, p.74.

562 Structural Material of Facades.

Just as for palaces and for public secular buildings, for these facades was employed as building material the crystalline and the ordinary limestone, in Rome probably travertine, (S. Maria Maggiore, S. Peter, S. Maria del Popolo, etc.), in Tuscany sandstone wrought by the stonecutter, rubbed or hammered, also covered by stucco, as for S. Spirito in Florence, in Genoa at S. Maria da Carignanoand at the Steccata in Parma. In monochrome and polychrome execution, bricks and ornamented terra cotta were used in entire upper Italy, in Bologna down to Siena (S. Maria della Grazie in Milan, Certosa near Pavia, S. Caterina in Siena, etc.), then marble facing on the magnificent churches of Venice and Genoa, likewise mosaic in Florence and other places (S. Miniato near Florence).

563. Structural Details.

The arrangement and general development of the plinth, portal, window and cornice determine the richnessand effect of facades, the alternative effect of openings and masses, the severity of a more ornamental exterior of the building.

564. Forms of Plinth.

According to the expenditure for the facades is also arranged the form of the plinth, passing from the simplest to the

richest as for secular buildings. Without particular emphasis on this is built the story masonry on S. Francesco near Florence, as a simple plinth without transition moulding on S. Lorenzo and S. Felice there. Like a pedestal, on account of the subdivision of the facade wall by columns and piers, is the plinth constructed on S. Maria Novella in Florence, S. Maria degli Angeli in Venice, S. Paulina in Lucca, and in three parts with base, die and cap on S. Maria de' Miracoli in Castel Rigone (Umbria).

As bench seats, just as for Tuscan palaces, we find the plinth at S. Maria delle Carceri in Prato, Madonna di S. Biagio in Montepulciano, with a triple division above it at the Church della Madonna in Mongiovino, and as vertical ashlars with decorated terminal band on S. Francesco in Rimini.

The plinth of the facade of the Certosa near Pavia is without a model or imitation, for only once in the world is such richness executed. It comprises a base adorned by little pilasters, whose intervals are filled by medallions of Roman emperors, above this being an addition with reliefs from Biblical history, enclosed within decorated frames with angle medallions between magnificent pilasters. (Fig. 736).[292]

Note 292. From Durelli, G. & F. La Certosa di Pavia. Milan. 1863.

565. Forms of Portals.

Beginning with the richest form of a principal entrance, t the portal of the same Certosa is to be mentioned in the first place; coupled columns bear an antique entablature, above which rises an arch enclosed within a square and with tympanum adorned by figures (Fig. 737).[292] Then follow the magnificent portal of the Cathedral in Como, where the internal and the external sides of the southern entrance gateway are arranged with coupled pilasters between niches with figures, over these being a richly decorated antique entablature, spanned by a triply subdivided round arch, the middle one being radially divided and showing relief ornamentation by figures, while t the reliefs in the tympanum have the Flight into Egypt as a subject. The arches are enclosed by rectangles, and over these is constructed an antique pediment, that exhibits the figure of the Saviour surrounded by angels' heads. More simply is t treated the interior, where it is only noted, that there the

shafts of the pilasters are dividedinto three panels, decorated by shallow niches with figures. An excess of richness by candelabra columns with high pedestals, luxuriant figure ornamentation, with a shrine containing a Madonna statue surrounded by angels and cupids, is shown by the western portal of the Cathedral, a composition that perhaps may be criticized architecturally, but one of the most precious creations of the early Renaissance in upper Italy. What a wealth and charm of motives, what wonderful execution, to which the Certosa near Pavia even cannot oppose anything better! 293 The portal of the left side facade (1505-1507) was by Tomaso and Giacomo R Rodari.

Note 293. See illustrations thereof in Santo Monti, Pls. 12 - 17, further in Borelli, Pls. 16, 17-20.

Another precious gift of the early Renaissance is the interesting conception of the middle entrance to S. Maria de'Miracoli in Brescia (1500-1535), a design only explained by the special purpose of the building. Four detached columns form a sort of portico, that bears a richly ornamented and closed upper structure; this may be regarded as a "stone reliquary casket", beneath which the entrance to the interior appears. "Ornamental and gleaming with its inexhaustible wealth of detail projects the middle portion of the facade", charming the observer and allowing him to forget the inorganic entirety. 294

Note 294. See Meyer, Part II, p.225 et seq.

As another magnificent piece must be named the portal of S. Maria Maggiore in Bergamo. The columns flanking the entrance support widely projecting ornamental consoles, on which rests a semicircular tunnel vault with coffers, again enclosed in part by a rectangle. This upper projection affords increased protection to the tympanum and to visitors of the church in bad weather.

The Tuscan and Roman churches of the early time are satisfied by a simpler treatment, when they reject the excess of ornamental decoration, and accept square piers instead of columns, but which then again also bear an antique entablature with arched roof and tympanum. (Portal of S. Maria della Quercia near Bagnaja, Fig. 738). The square pier yields to the C Corinthian pilaster with low relief, retaining the other ornamental accessories, at the entrance portal of the portico

of S. Marco in Rome (Fig. 789), and in the Badia near Fiesole (Fig. 790), where above the entablature is still arranged an addition like an attic, crowned by a vacant semicircle with angle and side acroterias.

The last examples show, particularly the Badia portal, original and masterly treated mouldings, which permit an architect of the first rank to be recognized without difficulty as designer, as also shown by the entire, dignified and noble upper portion with wonderfully beautiful proportions.

How brick architecture solved the same problem may be seen on the different structures and the illustrations in ChapterV. (Fig. 79).

Most simply appear the entrance portals on early church buildings in Siena and Rome as plain doorways with horizontal or regular caps, as at S. Pietro in Montorio and S. Agostino in Rome. A doorway with columns and a pointed cap is shown by S. Salvatore in Ragusa. In the arrangement of these entrance doorways on the main facade, there are usually a larger middle doorway and two smaller similarly treated side doorways. (Cathedral in Lugano, etc.).

Portals with columns, broken and curved pediments, with cartouches and sculpture over and between them, belong to the B Barocco period, and here as examples are to be named S. Gregorio in Messina, S. Maria in Campitelli at Rome, S. Maria da Carignano in Genoa, and many others.

566. Door Leaves of Wood and of Bronze.

The doorway openings were closed by simple paneled folding doors, mostly made of larch wood, or even by coffered leaves with carved framework, as for example on Chapel Colleoni in Bergamo, and in the same manner on the Baptistery and Cathedral in Parma; on the latter the principal and side doors are made with rosettes in the panels and with bronze nails at the intersections of the framework; high above on a cross piece is incised 1494. "Luchinus Biachinus of Parma made it." Magnificent wooden doors are also to be found on Chapel Pazzi in Florence.

Bronze doors adorned by reliefs, to which reference has already been made, are still preserved to us in the old sacristy of S. Lorenzo in Florence; the most wonderful, shutting into bronze frames, remain for all time those of Lorenzo and

Vittorio Ghiberti on the Baptistery at Florence, by which the fame of Andrea Pisano (1336), who furnished the first bronze doors for the same building should not be lessened. On these are animated compositions in relief in quatrefoil panels; on the others are rectangular panels, which enclose the figure representations. Lorenzo Ghiberti executed in 1403-1424 one folding pair, and in 1425-1452 the other pair, while Vittorio, son of Lorenzo prepared the enclosure of the door by Pisani (1442-1462); they remain a wonderful work of art, and of the great Florentine master, it was not saying too much, that they were worthy to adorn the gates of paradise. The jambs of the doorways have low ornament on the surfaces, on the front having garlands of fruits, birds and heads, full and undercut w work, "yet as natural as if the cast were made from the object itself." The surfaces of the doors were once entirely gilded; vestiges thereof still abundantly exist, which now with the patina of the bronze have a charming effect, and correspond more to our modern taste than the original condition.

Likewise Filarete's bronze doors of the great middle portal of S. Peter (1439-1445) must not be forgotten here, even if they do not attain the power and charm of those of Ghiberti. What Pope Eugene IV had executed on the first church building of Catholic Christendom was surpassed by Florence. 296

Note 296. On the worth of this work also see Meyer. Vol.I.p.82.

The bronze doors on the Cathedral in Pisa (Fig. 922) from the school of Giovanni da Bologna are likewise magnificent w works of the first rank. They were made in the time from 1598 to 1602 by G. Caccini, Angelo Serani and Gaspare Mola. (See J. Lupino in Italia Artistica, No. 10). Good Renaissance works are also the three entrance doors and the portal del Santo Camino of Basilica Santa Casa at Loreto.

567. Forms of Windows.

The windows of the middle and side aisles are formed as plain round openings or as richer rose windows with radial bars (Rome, Sebenico, Ragusa, Florence), and besides these occur the tall and narrow forms with semicircular heads, quite in the mediaeval sense, or they are rectangular, and in the late time are also segmental. The architraves then have the simplest mouldings, which again give place to very rich forms.

The transition style exhibits the rectangular form; the lin-

lintel is supported by a small slender Tuscan column; among the former are found two coupled round-headed windows with mediaeval tracery.(Window in choir in Cathedral in Sebenico, Fig. 791). The early Renaissance shows a rich example of another rectangular window (Chapel Colleoni in Bergamo, Fig. 792) with a great use of pilasters, fluted and twisted little columns and candelabras, detached figures and medallions. The employment of variegated kinds of marble and overloading with ornamental forms give the windows a rather secular character, but which is again softened by the peculiar closing of the o opening for light by little columns. set closely together.

Also here it is again the Certosa near Pavia, that presents the highest, yet with clear and good proportions. The slender and high double windows, whose arches are borne by candelabra columns, are enclosed by a rectangular architrave, and this again by another wider one, that is crowned by a frieze and cap with the richest sculpture; on the cornice lie dragons w with coiled tails or volutes, on which rest female figures, or which garland an interposed candelabra. The whole rises f from a background of square panels with medallions and shields of arms -- the proudest ever created by the decorative sculpture of upper Italy on an architectural member! (Figs. 793, 794). 292

Similarly, the master of the cathedral in Como has not avoided any means for making important its windows, Romanesque in general form with splayed jambs ornamented by pilasters a and gable, while again the Tuscans continue so plain and simple in the architraves of windows, as only possible to them; (also see S. Annunziata in Arezzo, S. Spirito in Florence and Fig. 795)..

The Barocco style employed broader windows and gave them enclosures, that differ but little from those of contemporary palace windows. (Fig. 795).

A representation of the mode of enclosing a large wheel window of the later time is given by the Cathedral at Lugano. ((Fig. 796).

Early Christian architecture was friendly to light in church interiors; men loved light rooms. The admission of light in Rome occurred in a dignified and beautiful way through the c clearstory windows, while in Ravenna the side aisles and apses

also received windows for light, which was connected with the position of the altar at west or east, as stated, the Roman Christians placing it opposite the west, those of Ravenna at the west.

During the middle ages men obstructed the daylight also in Italy by dark and colored window roundels. The Renaissance c could not employ these on account of the richly colored decoration of the mural and ceiling painters, and satisfied itself with white plane glass or roundels, which were arranged in p pleasing patterns in leads. Clear and beautiful daylight; all mystical effects are excluded!

568. Glazing the Window Openings.

The closing of window openings with glass was known to the Early Christian period as well as to antiquity, but the use was limited to perforated stone slabs and wooden lattices, t transparent gypsum and gypsum spar (gypsum windows) must serve as a substitute for it. The Protorenaissance utilized in tehe choir of S. Miniato still thinner polished white marble slabs for filling windows, which allow a warm yellow light to fall into the interior in a charming way in the morning, when the sun is still low. Similar arrangements are in the Cathedral at Orvieto.

Tasteful patterns of leading were further common in the centuries preceding the Renaissance; men also preferred those w with small roundels, which were already mentioned on Reichenau under Abbot Linthar (934-949) as closing the church windows.[297]

Note 297. See Geiges, F. Der Alte Fensterschmuck des Freiburger Münsters. Freiburg. 1902. p. 30.

The window of a passage in the Certosa near Florence still possesses painted panes, bright colored paintings on transparent glass, allied in composition and coloring to those in the Laurenziana in Florence. The last side chapel of S. Maria Novella in Florence, on the left of the choir and of the person entering, likewise possesses still two windows with paintings on transparent glass, which bear the Medici shield; on this occur the five red balls on a yellow ground and yellow crosses on a blue ground. The chapel directly beside the choir and at the left still shows vestiges of an original though simple Renaissance glazing. The same church has in the round windows of the clearstory if the middle aisle roundels of white glass

with inserted arms in white and colored glass at their centres. In the transept the wheel window exhibits the disks arranged like scales. As precious colored windows are also to be mentioned those in the side chapels of the Certosa near Pavia.

S. Lorenzo in Florence has moderately large rectangular panes of ordinary white glass, while the round windows in the choir of the sacristy exhibits panes with a colored round piece. The windows of the famous Medici chapel in S. Lorenzo a are each closed by six simple white panes. In S. Spirito at Florence, the windows are likewise filled with white glass of rectangular form (66 panes for each window), and bear in the middle space a brightly colored medallion (eagle with bright border, Fig. 795). A small window over the altar of a side c chapel is darkly glazed for about one-half with bright arms supported by cupids; but above this again follow panes with leading of good design.

A window of Maddelena de'Pazzi in Florence, side chapel at the left, is enclosed by a bright narrow border, and it has w white mother-of-pearl disks, bright horned apes, in the middle being a colored medallion with arms (lion and boar as supporters), on the other hand another shows a figure composition.

569. Treatment of the entablature.

The entablature mostly bears the antique character, and accordingly consists of architrave, frieze and cornice, more or less richly treated in details. The architrave is in several bands, the frieze plain or also adorned by rounds and festoons; the cornices only have on the projecting slab crowning and supporting members, or are beset by egg mouldings, dentils a and consoles, agreeing with the normal antique Corinthian cornice, as is the case on the chapel of Palace Turchi, the Churches of S. Caterina and S. Maria delle Nesi in Siena.

The Church Osservanza in Siena has a simple console cornice without frieze and architrave, the Cathedral in Como the richest membering with echinus moulding, dentils and consoles.

S. Lorenzo in Florence exhibits the dignified and simple d design without the use of decorated ornamental members, the main cornice being without dentils and consoles. The forms of the main cornices on two of the mightiest churches, of the Certosa near Pavia and of S. Peter at Rome, the one of brick and the other of cut stone (travertine) are given in Fig. 797.

The same course also prevails for the pediment cornices, as shown by S. Agostino in Rome and S. Giorgio in Venice.

570. Treatment and Effect of Interiors.

The treatment and effect of the interiors is first compelled by the arrangement of the plan, then being dependent on the use of one or more aisles, then on the form of the ceiling, and finally on the subdivision of the walls. That the arrangement of the windows, their size and mode of closure, the kind of monumental painting and sculpture have had an important influence, was previously stated. The architectural structure must give an elevated impression; that the magnificence depends on the costliness of the materials and the natureof the ornamental equipment of the interior in its entirety.

The most splendid results were sought here by the Renaissance, and they were also obtained, as shown by the Certosa n near Pavia, S. Peter and the great basilicas in Rome, distinguished by noble design. An excess of the finest structural materials, of marble and noble metals, stucco and paenting, with the highest development of splendor, is exhibited by the interiors of the churches of the Barocco style. (See the Church Gesu in Rome and the churches of southern Italy in their frequently offensive obtrusiveness.

571. Ceilings and visible Framework of Roofs.

With the so-called open framework of the roof as a ceiling, but with varied painting thereon, the Protorenaissance was s satisfied in S. Miniato near Florence, and without this the early Renaissance in S. Francesco al Monte near Florence and S. Francesco in Rimini. (Figs. 798, 799).

This was followed by the horizontal paneled ceiling of wood, after antique models of the good old time, with square or rectangular panels with framework intersecting at right angles, the crossings having rosettes. The two most beautiful examples of this kind must be that of S. Marco dei Dolci (1467-1471), in S. Marco,(see the adjacent Plate VIII) and that executed by Giuliano da Sangallo [298] in S. Maria Maggio at Rome. The former is kept in blue, violet and gold, the latter is in white and gold with "wise moderate richness of golden ornaments on a white ground, that one seldom finds elsewhere."

Note 298. Vesari ascribes the ceiling to Antonio. -- In the May number of 1892, the . Rassegna d'Arte,", it is sought to

estoblish Albert as the moster thereof.

A very magnificent work in this sense is also the yet strongly subdivided ceiling of the Cathedral in Pisa from the end of the 16 th century. (See Plate V). A coffered ceiling of the early period, painted white on a blue ground (1497, by Pier' Antonio dell Abbate), is well preserved in the upper s story of the School del Santo in Padua.

From the principle of the division into coffers of the preceding construction of beam ceilings deviate the wooden ceilings of the later peeiod, a capricious subdivision without a any organic connection with the interior -- a play of polygons, rounds, elongated painted panels and the like -- replaced the organically subdivided old form. All these ceilings are left in the natural wood, or are brightly painted.

"With happily combined architectural and plant richness" is to be mentioned the first kind of well carved ceiling of the Badia in Florence (1625, executed by Segaloni), and among those colored, that of the Annunziata by Ciro Ferri, and as a varied and Barocco work the gilded ceiling in S. Apollonia in Florence. As likewise already degenerate is to be named "as a free piece of magnificence" the ceiling of S. Stefano de' Cavalieri in Pisa, constructed after 1600, and as a work of about 1550 the paneled ceiling of the Church S. Pietro in Perugia is worthy of mention, and as a beautiful piece of "wooden vaulting" the ceiling in the right side aisle of S. Giacomo dell'Orte in Venice.

The most stately and magnificent paneled ceilings are presented by the Roman Barocco with its frequently eccentric panels, on which in addition to the rich use of gold are employed the colors blue, red, green and white. Most were constructed about 1600, and among these the most magnificent is that in S. Maria Trastevere at Rome. Others are to be found in S. Crisogono, S. Cesareo, Araceli, in the Lateran, in S. Agnes w-t-W, etc. Many of these were also restored in the last centuries in the ancient coloring.

Vaulted stone and horizontal wooden ceilings are constructed in the interiors of the great basilicas of Brunellesco, in S. Lorenzo and S. Spirito in Florence, where the middle aisle shows the horizontal covering, while the side aisles and the crossings are vaulted, the latter in the form of moderately

developed domes. (Interior of S. Spirito, Fig. 800 [299] and of S. Lorenzo, Fig. 801 [283] in Florence).

Note 299. Laspeyres. Kirchen der Renaissance in Italien. Pl. VII.

Complete vaults in all parts are shown to us in the already mentioned churches of the transition style among others:-- S. Maria della Catena in Palermo, the Cathedral in Sebenico, and from the early Renaissance the cathedral in Como, as well as on S. Andrea in Mantua. In the latter Alberti employed the c coffered tunnel vault, which then remained, with and without intersecting compartments, a preferred motive of the late Renaissance. (See S. Giorgio in Venice, S. Domenico in Bologna and S. Peter in Rome, Figs. 805, 806).

The sole very essential influence on the form of Renaissance vaults was maintained by the antique, whose mighty works in the domain of the art of vaulting were still preserved to a greater extent than today, particularly in the great structures of the Baths.

The middle ages could present little under such conditions of the Renaissance; it felt itself by the greater structural undertakings attracted far more strongly attracted to the antique, and it rather held itself with a tendency opposed to the presumed attainments of the period first named. In this sense is the antipathy of the Renaissance to the cross vault characteristic, and which Baccio Pintelli (1580) still employed in his churches, but without ribs. "Bolacueno was the last, that produced a light and noble effect with ribs and oblong cross vaults," indeed in Monastery Maggiore at Milan. In S. Agostino in Rome Pintelli still retained the mediaeval projecting diagonal ribs, but as already stated, neglected the separating transverse arches between the different bays.

More favor was found by the "concealed"cross vaults, that toward the crown were changed to a spherical surface, and in this form were better adapted to receive surface ornamentation.

The predominating forms remained the tunnel vault with semicircular or elliptical section, particularly those with intersecting side compartments, then the correct and the incorrect dome (Bohemian vault), as well as the dome on pendentives, and for apses and chapels the quarter sphere or niche vault.

The vault surfaces were either plainly covered by stucco ,

or were animated by coffers. (S. Andrea in Mantua, Fig. 804), covered by paintings (choir of S. Maria del Popolo in Rome w with the magnificent color decorations of Pinturiccio), completely covered by stucco ornaments, as in the domes of Madonna delle Grazie in Brescia (Fig. 807), or adorned by both stucco and painting, like the vaults of the side chapels in S. Maria sopra Minerva at Rome.

572. Surfaces of Walls and vaulted ceilings, their Decoration and Subdivision.

The subdivision and ornamentation of the surfaces of walls in the bays of the middle and side aisles are fixed by the arrangement of the openings for light, by the sizes of the e enclosing and supporting elements, and by peculiarities in t the arrangement of the plan, indeed also frequently by the c chosen kind of ceiling.

Of the solution of the problem for interiors with a single aisle with added chapels, it may be recalled, that S. Francesco near Florence has the so-called open framework of the roof, and S. Maurizio in Milan has a vaulted ceiling. (Fig. 808).

In both cases were made definite divisions into bays, marked by pilasters. The same is the case in the vaulted churches of the later time, where the supporting points are especially marked by projecting columns in the antique sense. (Plans of Baths).

If the clearstory walls and their roofs rest on piers, as Alberti carried out in S. Andrea in Mantua, or as the case in S. Peter, then the Renaissance adopts the same effective motive, which is employed with such great success on palace facades (Cancellaria in Rome, Palace Bevilacqua in Verona), -- the rhythmic bay, and thereby has the same imposing effect as in secular architecture. But still more peculiar is the effect if the pier is divided into two supports connected by arches, as in S. Salvatore in Venice, and these are joined to the nave by narrow tunnel vaults like wider transverse arches, between which rise small domes on pendentives. The tunnel vaults in the middle aisle continue toward the side aisles, while the low arches between the piers become side arches for the little domes lying behind in the side aisle.

The column appears again as a support of the clearstory in its ancient rights, then receives also the antique entablature

block between capital and impost, as in both basilicas of Brunellesco in Florence, where they again seek to make good by an intermidiate form in the poverty of late Roman and mediaeval art. Above the arcade on columns in the Florentine buildings mentioned, the surface of the wall remains without further subdivision; only the elongated windows animate it. (Fig. 308).

But as for porticos and courts the single columns were omitted, and those coupled in pairs appeared in their places, so was executed the like change in the supports of the middle aisle, where also those of Alessi followed the innovation introduced. (See the beautiful three-aisled church of S. Siro in Genoa surrounded b: a series of chapels; the columns stand there on a common plinth; the shafts are monolithic of white marble; the antique entablature borne by them consists only of an architrave with two bands with a cornice above it; angels' heads with wings and scroll ornaments decorate the front of the architrave).

Combined in fours, standing on a common pedestal and next receiving a complete antique entablature, we see the columns in S. Giorgio di Genovesi in Palermo as supports to the middle aisle. (Fig. 309).

The Florentine basilicas are statisfied by exploiting all a architectural members in the unchanged polished sandstone of the region, but cover the wall surfaces with white plaster a and leave this as the sole decoration. The Genoese and Venetians did otherwise, particularly the northern Italians in contrast to their allied relatives in the south, required colors and their transitory and monumental polychromy, making the greatest sacrifices. How far this could go, eloquent evidence is given by the walls and ceilings of the single-aisled Sistine Chapel in Rome (Figs. 310, 311). [800] First separated by pilasters are cloth patterns on the lowest zone of the wall, then a second with paintings from sacred history, above being recesses for light with slender round-arched windows, right and left of these being the solemn forms of church fathers in niches, above which are the lunettes and the ceiling vault 1 intersected by compartments, with its never again erected and unmentioned subdivision, and the magnificent paintings of Michelangelo and his "Last Judgment" on the altar wall! And can

resist the charm of such an interior consecrated by the Deity and by art? Here must one indeed say after viewing it for a moment:-- "Stop a moment then, thou art so beautiful" -- and so finished likewise! A finely membered, purely architectural decoration is shown by the wall surfacesof the apses and of the choir niche of the Cathedral in Como (Fig. 512).

Note 200. From Letarouilly, P. & L. Simil. Le Vatican et la Basilique de Saint-Pierre de Rome. Vol. 2. Pls. 18, 20. Paris. 1882).

573. Floors.

In the best period men rejected in churches the luxury of the rich floors, whose magnificence withdrew the eye from the art forms of the building. A covering of marble slabs in two or three different colors was regarded as least disturbing a and as satisfactory. In the Cathedral of Siena and that of Lucca were made inlaid pictures with figures in variously colored marbles, bordered by interlaced bands, with a rich frieze of dolphins. (Figs. 513, 514). Domenico di Niccolo (1428), Beccafumi and other artists were entrusted with the execution; black, white and red marbles came into use there. The originals are now largely replaced by copies, or concealed by board floors, the removed originals being preserved in the Opera d del Duomo in Siena. (Condition in Oct. 1912. Fig. 514. Original drawing for the year 1566).

Where in the earlier work a floor mosaic was employed, there is repeated the well known ornaments of the early Christian period and of the Cosmati style (Sistine Chapel, Tomb Chapel of Cardinal of Portugal in S. Miniato, Chapel in Palace Riccardi in Florence). Extensive use is made of colored glazed c clay tiles in the south, especially in Naples. Works worthy of mention are still preserved in S. Giacomo and in some chapels of S. Petronio in Bologna of the time from 1405-1457, in Venice (1510), in Parma (1471-1482), in Padua (1491), in the sacristy of Loreto, being a floor of beautiful Sienese work with grotesque ornaments (1500-1540), in the sacristy of S. Pietro in Perugia is one such of 1563, and in Naples one of 1440, then one in S. Caterina in Siena. (Fig. 497).

574. Form of the Principal Cornice.

With main cornice terminate, as for monumental secular buildings, the clearstories and side aisles, and so far as the c

corresponding works are not injured by mediaeval elements, t they have an unbroken horizontal direction. They remain within the form of the triply divided antique main cornice (architrave, frieze and cornice), where as on the palace architecture the addition of the frieze may be rejected or the architrave be replaced by an astragal. The projection depends on the magnitude and the richness of the building, as well as on the kind of material, whether dense limestone, sandstone or terra cotta are employed. (See Art. 569, Form of External Cornices.).

575. Historical and Technical Additions to prominent Church Buildings.

According to the preceding, we have to do with church buildings, which in their programme are connected with the preceding art epoch, both in the form of plan as well as in the e expression of form, but still where something was created, w which finally must be designated as sometimes new in the history of architecture, and is also recognized as such. But for certain prominent structures was still required some historical, technical and representative additions, which are evidently also cannot be exhaustive, but which one or another must yield some desirable information concerning their origin.

576. Starting Points.

577. Churches with single Aisle.

The beginning was made by churches of plan with a single a aisle, with plain walls externally and internally, lighted by high side windows, terminated by a rectangular or semicircular choir, with plain sides and somewhat more richly subdivided entrance facades, characterized by beautiful portals and wheel windows, and covered by the low antique gable roof.

578. Churches with added Chapels.

These were followed by such with added chapels along the sides, required by the increased needs and the demand for side altars.

579. Three and Five-aisled Plans with a series of Chapels.

The latter formed the preliminary steps to the three and f five-aisled basilican plans, which again were surrounded by a series of chapels, and so became a maximum of richness in form of plan and in internal treatment. Gabled additions, crossing and side towers, domes as well as vestibules were elevated additions.

It should be noted in the treatment of their forms:--

a. An antique tendency:

b. the peculiarities in the forms of facades of basilican designs:

c. The modes of connecting the gable breaks between the middle and side aisles, by convex and concave, sculptured and m mosaic volutes;

d. the semicircular gables for the middle aisle and quadrant as well as half triangular for the side aisles:

Reference was made to the difference in the execution between design and reality:--

e. to the mediaeval tendency in formalism:

f. to the building material of the facades (marble, bricks, ordinary limestone and sandstone, plastering:

g. to the forms of plinths for main facades:

h. to forms of portals and entrance doorways:

i. to the architectural forms and glazing of window openings:

k. to the door leaves of wood and of bronze:

To these are added the results of observation of the forms, subdivision and effect of interiors:--

1. In churches with one or more aisles;

2. The different kinds of forms of ceilings (visible roof framework, horizontal and vaulted wooden ceilings, vaulted masonry ceilings):

3. Subdivision of the walls and their decoration by stucco, painting and sculptures:

4. Treatment of the floors:

5. Forms of the main cornice of hard stone and of bricks.

According to the scale of this summary should follow the corresponding remarks.

580. Expression of Form.

The pure antique expression of form first makes its appearance in an impressive manner in Rome and Florence, as shown by the pediment facades on S. Pietro in Montorio (Fig. 761) and S. Agostino (Fig. 762). The accenting of the facades by horizontal belts and mouldings, architrave, frieze and cornice, by the low antique pediment, the balance produced in the composition by vertical bands and pilasters with Corinthian capitals, the antique moulded rectangular entrance doors, the repose and the beautiful subdivision of the windows and mass-

masses satisfactorily show this. For very small objects, for example like the chapel of Palace Turchi (Fig. 769), that entirely recalls one of the antique family tombs on the Roman military roads, as also S. Maria della Nevi in Siena, one believes himself confronted by antique works.

An attempt to free themselves from the ancient restrictions is shown by the facade of the Church S. Maria degli Angeli ((Fig.765) in Siena. The masters L. B. Alberti and B. Rossellino have entirely freed themselves from mediaeval fetters at S. Andrea in Mantua, both in plan, elevation and interior, 1 likewise at the Cathedral in Pienza, and at least on the exterior at S. Francesco in Rimini.

581. S. Andrea in Mantua.

S. Andrea in Mantua is a building with a single aisle, showing the form of a Latin cross in plan, with chapels along the side, a dome over the crossing, and a dignified pediment facade subdivided by pilasters with a great middle arched entrance to the high vaulted vestibule. (Figs. 763, 764).

Alberti, who abode in Mantua after 1459, after Cardinal Francesco Gonzaga, son of Duke Lodovico had decided on the rebuilding, was entrusted with the design and supervision of it. The erection was superintended by Luca Francelli. In February of the year mentioned a beginning was made by tearing down t the old S. Andrea, but of this remained standing the bell tower completed in 1412. In April of 1472 the said superintendent Francelli received the final drawings of Alberti, who died in Rome at 68 years of age, the same year. The building was slowly constructed, and Francelli left Mantua in 1487 for lack of employment. Only in 1490 were the structural works again continued, and about 1500 the vestibule and nave were completed; then the building again remained quiet from 1550, and only in 1597 the transverse aisle and choir were begun with ample means, and at the express command of the Duke, according to the drawings of Alberti, which were thus preserved a century later. Transepts and choir were probably completed by Viana from Cremona up to the year 1600. Then the building again rested until 1696. As in the building of the Cathedral at Como, meanwhile the sense of refined forms of the early Renaissance was lost, men prized little what had been executed previously, and also would have no more of the dome originally planned by

Alberti. The architect Torre was called from Bologna, who wished to rebuild and construct everything in Barocco style. But a happy fate again interposed a pause from 1710 to 1731; but from the following year we again find, that after Oct. 15, 1715, the two crossing arches still lacking then and the substructure of the dome were taken in hand, and that Cavalier Filippo Juvara from Messina, architect of his Sardinian majesty, was entrusted with the completion of the building. In 1738 were finished the pendentives and the great principal cornice below the drum, and in 1763 was finished the dome in the rough, and it was covered in 1782.

Dilapidation of certain marble members and of the stucco of the western vestibule made necessary in the year 1832 a restoration, by which were unfortunately destroyed remains of still preserved paintings of Mantegna and his sons. The stucco was removed and replaced anew, the painted coffers being executed in relief. The enclosures of the small doors and the o plinths of the four great pilasters were restored in marble, as well as the bases originally executed in terra cotta. The capitals of the great pilasters and those of the internal angles, that were modelled in lime mortar, were likewise replaced by those of marble; Likewise the internal walls were lined 5.4 ft. high with marble, and finally everything else was coated with light gray and yellowish milk wash, whereby also the red terra cotta members were concealed, but which in Oct. of 1901
250 were again made visible in their original color. Until the v year 1876 these embellishments were continued -- and now the guide books speak of a facade of white marble! How different must have been the building of Alberti in its original materials, and in the effect with the decoration by the paintings of Mantegna!

The details of the old parts of the church agree with those of S. Francesco in Rimini, and also with those of Palace Rucellai in Florence, so that also in this can exist no doubt of the participation of Alberti. As technical may be added, that in the construction all visible anchoring with iron is avoided, and that the tile roofing rests directly on the equalized tunnel vault -- entirely after the antique manner. Walls and vaults are built of bricks, and all repeated members, mouldings and enclosures with pilasters of neatly shaped and

excellent terra cotta. The flat surfaces are plastered, the capitals of the internal columns, the coffers, the subdivisions of the great dome, and the mouldings of the vault are of stucco. The interior is richly painted and is further emphasized by gilding. 301

Note 301. See the thorough and carefully established history of the building with beautiful drawings by W. Ritscher in Zeits. f. Bauw. 1899. p.1, 181. Berlin.

582. S. Francesco in Rimini and the Cathedral of Pienza. Alberti erected the marble temple of S. Francesco in Rimini, whose architectural elements are taken from the antique, as a rebuilding of a Gothic Franciscan church, whose external walls and pointed windows he spared. Independently of the old construction he clothed the entire preserved structure with a marble shell, left the pointed arches of the side chapels in the interior, and only changed their details. On the exterior he enclosed the sides by a round-arched arcade, in whose niches were placed sarcophaguses. He built the front facade entirely free, without caring for the earlier one, and he only retained the clear dimensions of the entrance doorway. In the frieze above the lower colonnade stands the inscription:--

"Sigismundus Pandulfus pan. V. F. Anno Gratiae. 1450."

The facade remains unfinished. How it should be is suggested by a medal of Matteo de' Pasti, that also shows that a dome was planned for the building, for the new portion, of which t the corner stone was laid on Oct. 31, 1440, with the benediction of the bishop of Rimini, Bartolomeo Malatesta. As building material served a white Istrian limestone; for the balustrade in the interior was employed reddish Veronese marble, but the tympanum of the portal was composed of variegated kinds of marble.

Alberti furnished a model, which he supplemented by drawings; he did not concern himself with the execution itself.

The treatment of the interior leaves much to be desired; t the wall members above the impost cornice between the adjoining pilasters are no very expressive additions; the limestone work exhibits the addition of gold and of blue peculiar to t the early Renaissance, as on the Palace in Urbino and on different tombs in Rome (Araceli) and elsewhere.

Peculiar is the shape of the bases of the piers of the chap-

chapels, where instead of the lions usual elsewhere (Colleoni monument in Bergamo, Monument of Giovanni Borromeo on Isola Bella), are chosen pairs of elephantsin dark marble and plaited flower baskets with cupids. 302

Note 302. Further in Yriarte, C. Rimini. Chap. X. p.179-202. Paris. 1882.-- Also Builder, Jan. 13. 1883. p.40-42,64, 1901, May 25, p. 514. -- Especially Zeit. f. Bauw. 1893. p.8,205.

For comparison in the conception and executionof the same problem on the part of two contemporary masters, allied in s spirit -- Alberti and Rossellino -- the unfinished facade of Rimini and the completed one of Pienza may serve. Both start from silimar points of view. (Compare Figs. 770, 771, of the facades of Pienza after Lasoevres, and that of Rimini after F. Seitz and H. von Geymüller's work on Tuscany).

The triple division of the entrance facade in Rimini and Pienza expresses agreement, but is executed differently in f form. What the ancient Roman theatre facade desired is again attempted, the elevation in several stories and the extending of a vertical division by pilasters and columns, although no innate reason therefor exists. One would suppose a two storw interior, an assumption not realized. The facade becomes a p piece of ornamentation, like its blind arcades being in nowise justified. The well known medal of Matteo de' Pasti agrees w with the unfinished parts of the existing facade; it may be interpreted for the composition in the sense desired by F. Seitz, p. 3.

583. Simplicity of the Side Facades.

The pure Tuscan Renaissance also limits itself on the side facades of its three-aisled churches to a great measure of simplicity, and develops them in form from the needs, as the section requires. The gradation from the middle aisle to the side aisle and the series of chapels faithfully shows what t the architect had done in the interior. From the facade may be directly read the plan and the section. With the antique are made the usual compromises in the subdivision of the facades of the chapels; blind arches between pilasters, in place of which for the clearstory appear consoles as apparent supporters of the antique cornice. Thus their architraves do not entirely appear as mere decorations, for men wished to allow them an apparent purpose, as on cell walls of different antique

Roman temples without columns. Dignified and quiet, with the most beautiful subdivision of the wall surfaces are also effective these side facades in their modesty. For them would s strikingly harmonize a front facade, designed on the basis of the single-aisled Church of S. Felice in Florence.

584. Influence of the Material and the Form Treatment.

How great the influence on the formal treatment might be t the building materials employed, is shown by three Oratories mentioned in Bologna, Perugia and Rome, that are built of bricks, marble and tufa. (Figs. 778, 815, 816). On the first is built a treatment with wide spaces and yet with refined treatment, like a triumphal arch or recalling a splendid portal of the Cathedral in Como, richly adorned by figures and ornaments, on which also color and gilding play a part, the whole with good projections and mouldings, expressive and almost excessive in its richness.

Structures of the greenish gray volcanic stone on the contrary are inferior, since on account of their small resistance to weather the ornamental or figure work in relief is almost excluded, and the color of the materials does not permit an animated effect of light and shade.

What is not advisable in natural materials, is again carried out in part in structures of bricks, when color and ornament participate. Still the works have something stumpy, since strong mouldings and projections cannot be allowed. On the o other hand, if dense or sedimentary limestone or hard sandstone come into combination with bricks, then is a maximum produced in the development of facade architecture, such as occurred on the Certosa near Pavia.

585. Cathedral in Como.

The same is permitted by the use of variegated limestone (marble), evidence of which is given by the Cathedral in Como. In this is a three-aisled basilican design, the Latin cross with dome over the crossing, polygonal endings of choir and transepts, constructed without tower or vestibule (Fig. 817, plan, Fig. 818, perspective view). Begun in Gothic and completed in Barocco, it is internally and externally entirely built of white marble from the quarries of Musso on Lake Como. On a stone built into the choir is found the inscription, that the church was begun in 1396, and that in 1513 was laid the

first foundation stone of the choir. Work continued without interruption till 1665, and only the completion of the dome remained, which was begun in 1730 and completed in 1744 with an expenditure of $48,731. The main altar was made in Rome in 1728, and accordingly we do not have to do with a native work, whose front facade further has remained Gothic. The inscription tablet at the base is supported by cupids and adorned by a shield of arms and chimeras, and states:-- (See text).

655 On Nov. 18, 1487, the new model of the choir was mentioned for the first time, for perhaps though not very probable, a sketch of Bramante was its basis, and on March 15, 1510, was first determined the site of the building, while there according to the inscription given above, the foundation was commenced on Dec. 22, 1513.

The name of Bramante does not occur in the building documents, but to a Milanese pupil of Bramante, Christoforo Solari, since as so frequently one is not satisfied with the native builder, is attributed the preparation of another model, which was then executed; finally also the Cathedral architect Tomaso Rodari assents to him, whose own name is alone given as architect on the marble tablet.

The wooden model "of the great chapel" with the drum of the dome is preserved, and is published in the work mentioned below [303] as the common work of Rodari and Solari. Likewise Santo Monte gives the representation of the choir after the model of Rodari (now preserved in Museum Civico at Como), but which was not executed in this design. (Fig. 819). It no longer pleased the later masters of the Cathedral building. New designs were prepared, that are said to have special reference

656 to the dome. For these Biffi (1684) first sent a design from Milan, that did not suit. Then came Castello in 1685 in the series, who was paid for his work in 1686. Then men applied to Fontana in Rome, who furnished a general drawing of the Cathedral with the dome and a section, which was paid for in 1688; he also examined the four piers with regard to their strength. Finally in the year 1731, it was decided to begin the dome; but the citizens doubted, whether the great masses of Fontana's dome could be supported by the substructure. Therefore they later called Juvara (1751), who as architect and engineer of the King of Sardinia stood in high esteem, and h

had him make new proposals -- procedures and expenses, that might all have been spared, if they had adhered to the existing good model of the first architects, Rodari and Solari!

Note 202. Santo Monti, D. La Cattedrale di Como. Pl. 27. Como. 1897.

If one sees the designs of Castello, Fontana and of Juvara, his heart does not beat faster, and he only regrets, that lack of judgment and of feeling for style frustrated the good designs of Rodari. When esthetics refused, tecnnics must suffer, and the dome was built circular in the interior and polygonal on the exterior, in form and proportions differing from the church, "since men did not trust the foundations, or desired to spare them." Also the name of Vanvitelli is yet mentioned with the dome, but whose participation others will not allow. But we still learn so much, that the Milanese engineer Merlo corrected the faults in the external form of the dome (1770) and that shortly before (1769) the Milanese architect had removed other defects. One believes that they lived in the 20 th century, when he sees the abuse of a good old structure by studio owners, architects and conscienceless builders, and an ill regulated public opinion. Rodari, who stamped the Cathedral as one of the noblest works of the Renaissance of upper Italy, experienced 270 years later the mutilation of his work by a Milanese engineer!

The repeatedly reviewed building documents by Monte do not name Bramante as engaged on the building, even if von Geymüller also conjectures this on the ground of a critical comparison of style, that Bramante had a hand in the game, perhaps by good advice in the form of sketches -- which is scarcely credible.

Portals and windows of the nave, the shrines crossing the buttresses, the urn bearers before the frieze of the latter remain eternally beautiful works, and also indeed uncontested works of Rodari.

By the half destroyed wooden model can still be readily seen what Rodari intended; concerning the outline of the great dome it unfortunately no longer affords any conclusions. But they must have been but little different from those of the half d domes of the transepts. On the present condition of the model see Fig. 820, after a sketch made by me in Sept. 1911.

586. Church of the Certosa near Pavia.

The history and description of the certosa near Pavia would alone fill a book. As an orientation may serve the Essay of Luca Beltrami, "La Certosa di Pavia with 70 illustrations and 9 plates. Milan. 1895." The study of the folio work of Gaetano and Francesco Durelli is particularly recommended. Further d dates in the architectural history follow in this connection.

The Monastery was founded by Gian Galeazzo Visconti, Count de Virtu, first Duke of Milan. On Sept. 8, 1696, was laid the corner stone; 6 years later (1402) already died Galeazzo. Beginning as Gothic, then carried on in the new style, it was s substantially rebuilt in the year 1542. The first architect remains unknown; the German Enrico Gamodia and Marco di Campione are named. But assured is the artistic work of Giovanni Antonio Amadeo or Omadeo (1466) as leader in the works in the new style.

As further workers are also mentioned by documents:--

Benedetto Brioschi, Fratelli Mantegazza, Ettore d'Aloa, Antonio da Locate, Battista and Cesare da Sesto, Francesco Piontello, Giacomo Nava, Marco, Agrati, Angelo Marini Siciliano, Andrea Fresina, Christoforo Solari called Gobbo, Christoforo Romano, Battista Gattoni, Agostino Busti called Bambaja, Antonio Tamagrini and Giacomo della Porta.

The principal building materials are white marble and granite, dark red and colored glazed terra cotta, these for the cornices, whose colored glazing is still partly preserved.

The stone sculptures of the courts for the time from 1450-1466 Gotthold Meyer divides into the following classes:--

a. Small sculptures in the tendency of the Campionese;.

b. Dry stonecutters' work corresponding to the transition style of Filarete and of Guinoforte Solari of Florence, and: .

c. Small sculptures of the early Renaissance of Amadeo and of Chritoforo Montegazza. The two last named executed half t the sculptures of the facade; in 1473 the remainder were transferred to Amadeo.

The shrines crowning the buttresses are likewise the work of Amadeo in 1478, and also the terra cottas in the small and great cloisters.

658 587. Colleoni Chapel in Bergamo.

From master Giovanni Antonio Amadeo likewise comes the Chapo-

of Colleoni in Bergamo begun in 1470, but which suffers by t the gayety and overloading of the entrance facade. The facade surfaces are covered by square marble slabs of black, white and red colors, which are set on the diagonals to produced t the well known shaded cube pattern; the pilasters are bordered by dark gray marble, the medallions are in the same style, while the sculptures themselves are white, and the ornamental panels are wrought in red Veronese marble. The small window pilasters of the upper zone are entirely of white marble; on the little columns and candelabras beneath alternate the materials again in black, white and red colors, so that the two outer ones are white and the two inner ones are red; gilding must originally have contributed as enrichment. With great c charm are the sculptured works in the interior, and first the entirely naturalistic vine decorations of the surfaces of the pilasters in the choir.

A very expressive and earnest work in the chapel is also t the tomb of Medea, the daughter of Bartolommeo Colleoni, of white marble, on which the artist immortalized himself by the inscription:--

"Giovanni Antonio Amedeo executed this work."

Thus we read the name "Amedeo" instead of "Omedeo". Also see Francesco Malaguzzi Valeri; Giovanni Antonio Amedeo. Scultore e Architetto Lombardo. (1447-1522). Bergamo. 1904.

588. Cathedral in Sebenico.

According to the "Cronaca della Casa Veranzia," the Cathedral in Sebenico was begun on April 9, 1431, in the Gothic style as a three-aisled basilica with transepts, dome over the crossing and three polygonal choir niches. The architect was the Venetian Antonio, sometimes called Pietro Paulo, who according to Mothes [304] belonged to the artist family of Massegne, and was already engaged on the church of Frari in Venice. But already after 10 years this master was sent away "on account of faults and defects in the building," and a "master Georgius Mathei Dalmaticus" was chosen, also called master Orsini da Monterotondo, also otherwise known by works in Ancona, Spalato and Ragusa, at which latter place with Michelozzo's advice, he conducted the works of restoration of palace dei Rettori. By the contract of June 22, 1441, he was first engaged for 6 years, but this was extended in June, 1446 for 10 more years.

In 1470 we find master Orsini for a short time in Rome. He d died in 1475 in Sebenico. During this time he completed the Gothic portion of the Cathedral, and transformed it into the system of the Renaissance, i.e., he completed the ground plan in its entire extent, the side aisles with the pointed arcades and valuts, as well as the remarkable roofs, and the entire choir structure.

Note 384. Geschichte der Baukunst und Bildhauerei Venedigs. Vol.1. p. 243. Leipzig. 1859.

On the angle pier beside the northern apse is a stone, that bears in Gothic characters the words:--

"This work was done by master Giorgio Matheo Dalmatico."

To be executed after the death of Orsini was still the clerestory, the transverse aisle and the dome.

After him came the third architect, Niccolo di Giovanni Florentino, known by works in Trau and Spalato, He was engaged on June 1, 1477 at an annual salary of 120 golden ducats, that he also received until 1517. Under him were completed the transverse aisle with elevated choir, the galleries and the stone roofs over the apses. Then in his place came Bartolommeo, sometimes called Giacomo da Mestre; he was succeeded by his son Giacomo, who was busy until 1535. A Giovanni Masticevich", stonecutter from Zara laid the last hand on the building, whose completion is stated by the inscription in the interior:- (See text).

Thus 307 lustres (of 5 years each) and one year give 1536: t the building period thus lasted 114 years.

The material is a white and extremely firm limestone, quarried in the vicinity, the technics are perfect, and the form no less so. The details of the construction have already been described. Attention is then especially to be called to the small baptismal chapel, whose ceiling consists of a single r richly ornamented block of stone.

The beautiful structure showed great injuries at the beginning of the last century, that gave occasion for a thorough restoration, in which the entire dome must have been removed and rebuilt; likewise the stone roofs of the aisles were laid afresh, and also four capitals, a column of the arcades and a great number of pieces of the cornice were replaced. The Austrian government became responsible for this work in the

most complete manner. [305]

Note 305. See Graus, J. Der Dom in Sebenico. Kirchenschmuck. Jahrg. 27 (1886). Nos. 1 - 5.

A structural section, the general perspective view, and the main facade of this unique existing church, are given in Figs. 781, 782, 783.

589. Transition from the Side to the Middle Aisle.

At the principal facade of the Certosa near Pavia for the transition from the middle to the side aisles and from the aisles to the chapels, various expedients were under consideration. According to the model of Visconti and the fresco of Borgogne the shed roofs should receive in the Gothic style drained half gables (Fig. 821). But they were suppressed by the richer execution of the main facade, and a blind architecture with semicircular gable gable was placed instead. One motive is dry but logical, the other a show-piece, behind which the shed roofs of the side aisles must be concealed. Less easy was the problem to be solved for the middle aisle itself. The three higher aisles were there gathered into a unity and treated as such, when the two stepped gables ended abruptly against the higher and horizontally terminated front structure. The original architectural idea had nothing more to do with this new conception (Fig. 821). Were the masters of the building at that time contented with the building with horizontal ending as shown today, or had they planned something further? One might find the contrary from an old engraving (in Malaguzzi Valeri), if only these so-called old engravings were always admissible, for they are almost all inaccurate. According to the engraving the three higher aisles are brought beneath a gable roof, like the hall churches; but the middle aisle should again be indicated by separate vertical members and by a smaller gable (gable within a gable), which never could have been the case. The representation might also be so interpreted, that we have to do with a piece of ornamentation, where the common gable roof extended only so far back as the chosen thickness of the facade wall, and the basilican design of the nave adjoined it in the form of a normal three-aisled basilica. Then would we stand before the same deception as now, that only now has a magical effect by the inserted blind gable (Figs. 821, 822). But the grand gabled facade required a different

ending, another termination of its masses. Here is wanting t the proper arrangement!

But instead of this simple and of the complex solutions, (Fig. 821), the Renaissance also finds yet other ways, when it contrasts with the direct mediaeval gable the curved volute-like, or the simple arched form. Serlio pleases himself w with the latter on his design for a basilican church with three aisles. Richer is the transition by convex or concave fully developed volutes with two scholls at the ends.(Fig. 821 A, B, after representations on marble reliefs,on which one of t the volutes is beset by acanthus leaves). L. B. Alberti recognized the danger of too strongly accenting this architectural form, and allowed it to only express skilfully applied mosaics. How easily one may injure an otherwise well designed facade by an accessory in too strong relief or made at too great a scale, is shown by many buildings on Italian soil in frequently a very frightful way. (Cathedral at Turin, somewhat more acceptable at Church Gesu in Rome). To the simple but scarcely suitably developed form of tee half gable Palladio returns; Guarini on the other hand resorts to the broken gable with s statues placed thereon. (Also see the volutes of S. Maria della Salute in Venice).

590. Transition with Semicircular and Quadrant Roofs.

Otherwise appear the gable forms and transitions for semicircular and quadrant roofs. They logically and accurately follow in outline the form of tie roof, both of middle and side aisles, whether the roof be constructed of stone or wood, as may still be seen and examined on the single-aisled little Church S. Maria dei Miracoli (Fig. 823), or on the greater C Church structure of S. Zaccaria in Venice (Fig. 824), or on the three-aisled Cathedral in Sebenico.

I had formerly made the statement, that the semicircular g gable was an original invention of the Italian Renaissance, which was to be found particularly in Venice and on tee Dalmatian coast, but was better taught by a coin found by Dell, (1908), (who moreover had the goodness to call my particular attention to it), that the great Goethe was again right in the statement (Faust II, 2), "who can think something stupid or wise, that antiquity had not thought?" The coin is reproduced in Fig. 825, the Temple of Isis in Rome, already shows the

semicircular gable over the entablature of the temple.

Other semicircular and quadrant gables have already been m mentioned on a church in Ragusa and one in Ronigo near Verona.

591. S. Spirito in Florence.

In the year 1433 Filippo Brunelleschi received the commission to rebuild S. Spirito in Florence, but which soon met the fate of all churches so far treated; he divided it into stories. At the death of the master the plan was constructed in its main lines, and the model of the building was made. Antonio Manetti was entrusted with the completion of the structure, so that the principal building period probably fell in the t time 1470-1480, and the church could indeed be consecrated in 1481, even if it were not yet complete in all parts. Besides Manetti, called Lo Scorbacchia, who was engaged as mason foreman on the building 1475-1490. The bell tower was begun by Baccio d'Agnolo (1462-1543), and completed after his design under Cosimo I.

For the design, the cross-shaped nave basilica with the accenting of the crossing and the cross ending in two parts is Brunellesco responsible, but not for all details. The middle aisle has a horizontal wooden ceiling; the side aisles are c covered by domes, and the chapels are covered by niche vaults. The dome over the crossing has a low drum without windows, a above which rises the so-called "melon vault" with ribs, small round windows and a lantern at top. Beneath the dome stands the main altar, as in S. Maria del Fiore at Florence and in the Cathedral of S. Peter at Rome.

The narrow windows of the side chapels, that are now half or entirely walled up on account of the altars, exhibit in h horizontal section a form agreeing with the semicircular form of the chapel wall. From this it may be concluded, that the now plane walls of the chapels were not originally intended.

As now proved, there exist irregular hollow spaces in the masonry between the chapel walls, that support this conjecture. The later master indeed desired to get rid of a certain sort of "angles", and to secure a more quiet side facade by the equalizing straight wall. [306]

Note 306. An allied arrangement occurs on this side of the Alps at the Church S. Michael in Munich; there the architect sought a solution, by which the internal semicircular form of

the chapel is also shown externally, and still makes possible a straight direction of the plinth and cornice (Fig. 820). T The attempt is interesting and worth mention. The placing of dwarf columns on the domes or the niches of the Certoso near Pavia can only be termed a foreboding of this solution.

The columns in the interior are monoliths and polished, like the entire internal stonecutters' work, set with tolerably fine joints, and coated with white lime mortar. The forms of the angle piers of the crossing, the supports for the four a arches of the middle aisle and the dome are borrowed from those in S. Maria Novella and S. Croce in Florence. To the tall piers of the middle aisle are attached the shorter ones of t the side aisles, so that the arches of the latter spring considerably lower than those of the middle aisle; therefore they have to receive below an arch and the thrust of a vault from two sides, with similar ones above, opposed to the former but at a different height.

In S. Maria Novella the square form of the nucleus of the pier has a side of 3.44 ft, on two sides being projections of 1.15 ft. and on the other two a similar one of a half column with two small rounds. In S. Croce the crossing pier is octagonal with a diameter of 4.92 ft. In both churches, one of which is vaulted, the other showing a beam ceiling between the arches, deformations in the piers exist, or more worthy of m mention, while the same arrangement in a Venetian church complete bends are noted. In S. Spirito the nucleus has only a side of 3.74 ft. with projecting half columns on two sides, where the separate ashlars of the courses are mostly through stones. The vaults are constructed without visible anchoring, but all four angle piers with the adjoining arches are strongly deformed. Also all vaults of the side aisles exhibit large parallel diagonal cracks. Many injuries may be referred to t this, that the arches at one side rest on masonry with numerous joints, and on the other side on ashlars with few joints, so that both supports must settle unequally and the consequences of this are movements in the arch. Thus are the deformations very great in the arches of the side aisles, especially at the right of the high altar, and also the dome shows small cracks in the masonry of the drum, that continue to the arches.

592. S. Lorenzo in Florence.

S. Lorenzo in Florence was begun in the first decades of t the 15 th century as a new building of the Tuscan-mediaeval type. Brunellesco found, when the work was entrusted to him, the ground plan in the foundations of the transverse aisle a and choir; therefore the nave basilica with transepts was not placed exclusively at his discretion. Particularly in regard to the form of the transverse aisle, S. Croce and S. Maria N Novella in Florence served as models; but the master created the nave entirely new.

Likewise Antonio Manetti carried this building further and in 1460 brought the interior to completion; by him also is the present form of the dome over the crossing, since the transverse aisle and crossing were still unfinished at Brunellesco's death. He likewise left the gable facade incomplete, which he had indeed designed as simple.

As at S. Spirito the middle aisle has a horizontal coffered wooden ceiling, now colored white and gold; the side aisles are covered by domes, the chapel niches by tunnel vaults and the crossing by a hemisphere without drum, but with a lantern at the vertex.

The four supporting cross-shaped piers have in the square nucleus sides of only 2.95 ft. with projections of 0.66 ft., the ashlar courses being 1.12 to 1.67 ft. high. Here also the stonecutter's work is all polished, but is now covered by a light gray lime wash. The columns are monoliths, the vaults are constructed without visible ties. To the arches of the s side aisles resting on the crossing piers, all the keystones are displaced from their normal positions, and all vault compartments of the side aisles are cracked diagonally, like those in S. Spirito. As there, the material is a grayish-green sandstone; the surfaces of the walls and vaults are plastered white. There further come into consideration:-- S. Satiro in Milan, begun by Guinoforte Solari, whose further construction is sometimes attributed to Bramante, also sometimes to Bramantino. To the great native of Urbino must the building of the sacristy be referred with certainty, and indeed still other parts of the interesting work.

What now appears is a three-aisled pier basilica with transverse aisle, dome over the crossing and a sham choir. The tran-

transepts and middle aisle are spanned by coffered tunnel vaults, divided into bays by strengthening arches, corresponding to the pilasters of the piers below. The dome has a low drum without windows, its internal hemispherical surface being decorated by coffers; the apex is crowned by a lantern: the enclosing walls extend above the vault and support a low conical roof.

The side aisles are covered by small cross vaults, and only extended beyond one side of the transverse aisle, since an ex-
600 tension on the other side was impossible on account of the obstructing limit of the building. This limitation led to the construction of the sham choir, which does not fail in its e effect, so long as one remains on the middle axis of the building, and does not observe the bend in the lines of the internal cornice, but which makes itself unpleasantly evident, the more one leaves the middle axis or approaches the choir. Seen from the transverse aisle, the whole appears ridiculous and "famous" only for the ignorant; the beautiful sham does not maintain itself, and what is intended is not attained. U Until 149) extended the building period; the dedication is given as occurring in 1523. (Fig. 48). 307

Note 307. A good illustration is found in Rossino. -- For the sacristy in S. Satiro and the choir of S. Maria delle Grazie in Milan, See Figs. 29, 46..

The Church della Santa Casa in Loreto comes in consideration here, only so far as Bramante is mentioned in the work of improvement on the dome, but more yet since he was the creator of the wonderful marble exterior of the Virgin's House beneath the dome, that Andrea Sansovino (1513-1529), Girolamo Lombardi, Tribolo, Bandinelli and others adorned by statues and reliefs, and Girolamo Lombardi furnished with bronze doors. 308

Note 308. A description of this architectural work is to be seen in Zeits. f. bild. Künste, 1871, p. 160. -- The sketch plan there given is entirely wrong, for example the nave is too short by one bay.

593. Churches in Milan, Genoa, Florence and Venice.

Of Milanese churches, some are still to be mentioned according to the dates of their origin.

S. Maria near S. Celso (1490), built by Giovanni Dolcebuono, with beautiful forecourt and a rich facade by Alessi. A three-

aisled pier basilica with 12-sided dome on a closed drum and
657 a choir aisle with nine external sides, or for five square a
and four triangular chapels. The choir itself forms a half oc-
tagon in its plan. [309]

Note 309. See the publication in Cossino, plates 19-24, in whose text Bremonte is still designated as creator of the vestibule.

S. Vittore by Alessi (1560) on account of its magnificent internal Barocco decoration.

S. Fedele, built as a Jesuit church, from Pelleerini's plans (1569), completed by Martino Bossi. [310]

Note 310. Published in Cossino.

In Genoa is to be mentioned the three-aisled basilica of S. Annunziata on account of its extremely magnificent interior with inlaid works in red marble on the walls, built by Giacomo della Porte.

In Florence the facade of S. Trinita (1593) by Buontalenti (1584), and on account of its interesting and rich Barocco f facade of the year 1663, S. Salvatore in Venice by Giorgio S Scavento, and completed in 1534 by Tullio Lombardo.

Of the churches of Palladio in Venice are to be named:--

S. Giorgio Maggiore, begun 1560, with the facade finished in 1575 by Scamozzi.

Further, the Church S. Redentore with single-aisled interior, built in 1576.

668 594. Roman Barocco Churches.

Of Roman churches of the late period may be mentioned as particularly prominent:--

Church Gesu, the principal church of the Jesuits, built at the command of Cardinal Farnese in 1568-1575 by Vignola and
669 Giacomo della Porta, showing one of the most magnificent and richest interiors of Rome. Its nave was furnished with costly marble paneling by Prince Torlonia in 1860.

S. Andrea della Valle, begun in 1591 by P. Olivieri and completed by Carlo Maderna, with a facade after designs by Carlo Rainaldi (1665). Particularly worthy of consideration on account of the bronze copies of the Pieta, the Lea and the Rachel of Michelangelo, and the charming bronze candelabra in Chapel Strozzi.

S. Ignazio, begun in 1626 at the cost of Cardinal Ludovisi

and completed in 1675; planned by Father Gressi with a facade by Algardi. (Fig. 827, plan).

595. Singular Perspective.

Famous is the interior of the building by the paintings of Father Pozzo with his singular perspective, whose painted architecture seeks to excel the monumental. With extraordinary and unsurpassed skill and a distinguished sense of color, we see the executed composition -- but one thing remains always fatal to it, that it has the proper effect only from a single point, that is wiseln indicated by a round marble disk in the middle of the main aisle. Leaving this, the beautiful appearance ceases, and it shares the fate of all similar perspective follies. Shame on so much spirit and knowledge in the wrong place. (Figs. 828, 829).

It should not remain without mention here, that already Lionardo da Vinci busied himself with this sort of decorative painting, and is known to have given suggestionsfor its execution. With the addition of the corresponding illustrations, the purport of the two rules of the great master may be given. He says:--

I. "To draw a figure, that on a wall 20 varas high shall s seem 40 varas high, have the proper dimensions of the members, and shall stand upright on its feet. Neither in this nor in any other case must it trouble the painter, how the wall or surface is constructed or shaped on which he paints, particularly if the eye itself viewing the painting must look through a certain window or sight opening. For the eye does not have to consider the plane surface or curvature of the wall, but only the object that shall appear in different places in the free space represented. It would be better to make this figure on the curvature f r g of the vault, for there occurs no angle." (Fig. 830).

II. "On a wall 12 varas high, to paint a figure that shall seem to have a height of 24 varas."

"If you desire to paint a figure or any other object, that shall seem to have the height of 24 varas, this is done in the following manner. First paint on the flat portion of the wall the half of the man, which you wish to make. Above this you make the other half on the vault r v. But before you make the intended portion of the figure on the upper vault, draw

it first on a plane floor , the wall on which you have to paint, exactly in the form as it exists on the vault, then behind this wall the figure is likewise drawn in profile, in the size you desire, and draw (from all its chief points) the sight lines to the point F. And just as these lines intersect the(drawn)wall(or section of the stucco) r n, transfer these (i.e. their points of intersection) to the (actual) wall, that is of the same form as the drawn wall, and thus you have all heights and projections (or depths) of the figure given (perspectively). The transverse dimensions or widths, that are f found on the straight or vertical portion of the wall m r, you make in their true form, for by the rising of the wall the figure is diminished of itself. But the (half of the) f figure, that extends into the vault, must then diminish (by menas of construction) just as if it stood upright. This diminution must you make on a very flat floor, and there will ((first be drawn) the figure (in plan) with its true breadth, that you take from the(part on) the wall m r. This must you then diminish on a vertical section line. That will be a good method. (Lionardo da Vinci, Book of Painting -- Vatican copy (Gronius) . 1270. Vol. 1. p. 424-427. Vienna. Translated by Heinrich Ludwig).

But also Gottfried Semper takes position in this matter in his "Stil" (Vol. 1. p.69. Frankfurt. 1860), and he says in his inferences from the principle of historical painting; "One conceives the ceiling as a transparent glass surface, behind which the walls remain visible. What is then painted on this vertical wall surface beyond the ceiling as if standing upright., must also so appear, if for this only its projection on the surface of the ceiling (originally conceived as transparent) in the place. This simple rule is at the same time the starting point for the developed art, the so-called singular perspective, that knows how to represent correctly and true to nature the most difficult architectural combinations connected with rich groups of figures, on the surface of every c ceiling. It was commonly employed already in the Renaissance by Bramante, Peruzzi and other masters but later was certainly carried by the Jesuits to the height of bad taste. Thus every figure object with head and feet, must have its feet as if rooted on the cornice of the wall, and this is true for all

four walls, as well as for the perimeter of an enclosed, cir-circular wall surface."

596. Visible Roof Framework.

For visible roof framework may be added a final remark:--

The so-called visible framework of the roof of S. Miniato near Florence (1207) (Fig. 798), in which the form of the three-aisled basilica "has received a final and highest consecration," was painted (now restored); the apse is adorned by a mosaic: "Christ between the Madonna and S. Miniato" (1207) (also restored); the five windows of the choir wall are closed by traslucent slabs of marble. (A similar closure of church windows is also in the Cathedral at Orvieto). The dignified facade is incrusted with white and greenish marble, whose mosaics date from the 13 th century and are largely restored. The church contains true pearls of the minor arts of the Italian Renaissance in the canopied altar, in the ambos, and especially in the sepulchral chapel with the tomb of the Cardinal of Portugal. (died 1459).

The visible roof framework preserved in S. Francesco at Rimini has retained its good rights in smaller church buildings, also by other masters, for example in the Delia Vilanella near S. Miniato. (Fig. 799).

The entrance is also the exit in our buildings, and by this we leave this Chapter with a reference to its characteristics.

597. Porticos.

As a special addition to nearly all quite early and especially on later buildings are to be termed the designation of deep and mostly vaulted porticos, that extend the entire width of the church, or further along the longer sides, or even freely beyond the building. (See the early Christian buildings in Rome, Church in Empoli, Cathedral in Citta Castellana).Of particular interest is the portico of S. Maria della Catena in Palermo with its depressed arches and its members, that c challenge comparison with allied phases of the style.

At the little Church S. Maria delle Grazie in Arezzo the e early Renaissance displays a disproportionate arrangement, s since the single-aisled building is exceeded about three-fold in width, while at S. Maria della Catena it does not equal t the end of the church. Yet in a matter of form it shows perfected and beautiful details, and structurally a widely projec-

projecting stone main cornice, worthy of consideration. A portico just as beautiful as interesting in design was also erected in Arezzo.

The High Renaissance extends the portico beyond the width of the three aisles, and treats it rather as a projecting front structure. Leo X had such a one erected before the Church S. Maria in Domnica or della Navicella in Rome, apparently by Raphael. (See Letarouilly).

The late Renaissance returns again to the ground idea of t the transition style at Sapienza in Naples; Fansaga (1591-1678) here furnished in the 17 th century one of the most beautiful porticos for a church building of little worth. About 250 ye- years lie between these four different conceptions of the same problem; first showing embarrassment, then breathing freedom and release, later filled with high earnestness, finally the end shouting in jubilee.

SECTION XXIV. CENTRAL AND DOMED CHURCHES.

Their internal and external treatment from the beginning of the Renaissance in Italy until its end at the close of the 1 18 th century.

"The central structure is the last in the domain of absolute architectural forms, as the Grecian temple was the first. Its possibilities were not exhausted for a long time, it may give intermediate periods like the 19 th century (indeed also the beginning of the 20 th ?), which must again express the task of the 18 th -- ever anew this great problem emerging, where the attempts of the Renaissance will appear as indispensable preliminary steps rightfully glowing. -- But indeed the Renaissance has developed near to absolute perfection the highest church form, essentially excelling all Gothic, the central s structure, and has left it as a legacy to a future religiosity."
Burckhardt. Geschichte der Renaissance . p. 97. Stuttgart. 1878.

598. The Central Building.

For the acceptance of the central building as an architectural form of church was of importance in Italy the existence of so many antique round and polygonal structures, as well as the constant connection with the East, that offered sufficient incitement in S. Sophia, to name but one example of high rank. The "mystical fame" enjoyed by the Pantheon in Rome and S. Lorenzo in Milan, the surprise at other and then better p preserved central structures of circular or polygonal form, like the mighty domed buildings at the Baths in Rome (Baths of Caracalla and the so-called Minerva Medica), those near Naples (Baiae), also the early Christian buildings in Ravenna, first kept alive the central construction in Romanesque architecture, made experiments in the Protorenaissance (Baptistery in Florence), then in the Gothic middle ages, even if it then remained only on paper or in a model, (Florence, Pavia, Loreto); its development was then undertaken by the commencing Renaissance.

The custom of regarding the baptistery as a central building and expressing this architecturally, contributed here to not allow the idea of the circular building to be lost, where also the art of vaulting large interiors did not fall into forgetfulness; for a central building was scarcely to be concei-

conceived with a vaulted roof.

The accenting by a dome of the crossings of mediaeval cathedrals in Italy, with the acceptance of the Latin cross as the ground form, has frequently been considered; but to regard it as a dominating entirety, as an architectural centre of a structural design, and also to erect it as such, remains the undisputed merit of oriental Early Christian architecture and its continuator, the Italian Renaissance!

"Absolute unity and symmetry, perfectly beautiful subdivision and enhancement of the interior, harmonious development of the interior and exterior without idle facades, and the most splendid arrangement of the lighting" -- these are the characteristic marks and peculiarities of these domed structures, that cannot be more strikingly represented by words, t than Burckhardt has done here.

599. Basal Form and Characteristics.

The arrangement of the dome over circular or polygonal interiors remains the simplest solution for the structure, but whose unity is disturbed, if the altar be not placed at the centre of the plan, since then a special addition must be constructed for the altar. (See Madonna di Campagna near Verona, S. Maria at Busto Arsizio, Ulimta in Pistoja, S. Sebastiano in Milan).

These inconveniences and doubts vanish with the adoption of the Greek cross with four arms of equal length as the ground form, that eventually became the prevailing one.

But great structural undertakings in domical architecture do not begin with the personification of the ideal; they are completed works in newer form for what others have used as a basis; they are at the same time preliminary works for the future, but then not yet attained powers.

600. Beginnings; Sacristies and Chapels.

On sacristies and chapels the early Renaissance must experiment in its first independent and original works of central architecture; structures of little volume and with small domes, but therefore designed and executed the mort chanmingly and more beautifully in details.

Here is to be counted the sacristy of S. Spirito at Florence with octagonal plan, two series of pilasters over each other as a decoration of wall surfaces, and where the pilasters

set back from the corner (angle of polygon left free), above being a cloister vault with lunettes and a small lantern extending into the attic. Giuliano da Sangallo is named as the author of the plan and model, Cronaca as architect, who brought the structure to completion, and Sansovino as the master of the beautiful details.

Also the sacristy of S. Lorenzo there, which came from the hands of Brunellesco about 70 years earlier, the so-called old Sacristy (1425) belongs here, that over a square plan has a so-called melon vault on pendentives with round windows, but without interposed drum.

More imposingly treated is the work at the Pazzi Chapel in Florence, that likewise had the great Brunellesco as its originator (1420). No central building in the proper sense of t the word, the chapel exhibits an oblong form of plan with vestibule and choir, where the principal axis is not placed lengthwise but transversely like the end of the building, the liturgic axis lying also in this direction. The architectural membering of the ceilingjustifies this procedure, since there the rectangular interior is divided into three parts, indeed by two semicircular arches into a square middle and two narrow side areas.

The two latter are constructed as tunnel vaults; the middle portion is built as a melon vault on pendentives with ribs a and round windows, crowned at the vertex by a lantern. The d dome then dominates the entire design; the tunnel vaults at right and left accompany and buttress it, and between these on the middle axis of the dome opens then the square choir, that is again covered by a dome. Access on the liturgical axis is permitted by the beautiful and large entrance doorway with its precious carved door leaves at the rear wall of the charmingly vaulted portico, whose middle area is likewise marked by a dome, whose ornamentation with brightly colored majolicas from the studio of Robbia has already been mentioned.

As the work of Brunellesco may still be mentioned the purely central plan of S. Maria degli Angeli in Florence (1451), where was intended a span of 51.8 ft. for the dome, assuming it to be octagonal inside and with sixteen sides externally. (See plan in the collection of polygonal churches. Fig. 989).

601. Dome over the Ground Plan of the Greek Cross.

The ground form of the Greek cross is found in the purest way in the construction of S. maria delle Carceri in Prato by Giuliano da Sangallo (1485). Surrounded by four equally large tunnel vaults, four transverse arches of these receive on pendentives a closed drum divided in panels and surrounded by a balustrade,above which rises a melon vault with ribs, round windows and a lantern on the crown. The drum appears externally, but not the vaulted form of the dome itself, that still enjoys the addition of a low conical roof as in upper Italy. (Fig. 832), [311]that is also the case for the dome of the Pazzi Chapel at Florence, and in recurved form on S. Maria at Busto Arsizio.

Note 311. From Oettinger, W. von. Antonio Averlino Filorete's Treatise on Architecture. p. 465 (Fig. 7). Vicenzo. 1890.

The domical (protecting) roof in vaulted form is shown in the earlier designs only by the dome of S. Francesco at Rimini, designed by L. B. Alberti, and that of the Cathedral for Bergamo by Filarete (Fig. 833),[312] as well as the ideal struture of the Sperandio. (Fig. 831 of the medal).

Note 312. From Lespeyres, Die Kirchen der Renaissance in Italien. Pl. 33).

602. Later Buildings.

The form of the Greek cross in the interior, but not on the exterior, is shown by the beautiful central Church of Madonna di Biagio in Montepulciano, which is not like a minaret as in the drawing of Filarete, but has two boldly treated bell towers at the right and left of the front arm of the cross, a w work of the elder Sangallo (1518-1537), one of the most perfect central church buildings of the high Renaissance. (Figs. 834- 835).[313] Not only the light admitting drum here appears externally, but also the calotte form of the dome with the l lantern. The high, cylindrical drum is subdivided by closely spaced Corinthian pilasters, which are continued in the form of plain ribs on the vaulted internal surface. The window openings of the drum in the interior are not placed at the same height as on the exterior, also the internal main cornice of the dome lies lower than that on the exterior. Yet the internal and external window enclosures are connected by jambs slanting downwards to the interior, so that to the observer the view of the entire interior is possible from below, but which

cannot be justly termed an organic solution. (Fig. 835).[313] The like arrangement with the inclined jambs for the internal and external windows of the dome was permitted by the architect of S. Fedele in Milan.

603. Central Buildings with circular and polygonal domed Interiors.

A further group of mediaeval central structures is composed of the churches of upper Italy by Bramante and contemporary masters, a great number of which Strack has published in his work mentioned below.[314] They are sometimes arranged circular in the interior and sometimes polygonal, with domes resting on pendentives, or covered by cloister vaults, but all have the crowning lantern.

Note 314. Strack, H. Central und Kuppelkirche der Renaissance in Italien. Berlin. 1882.

As a first example may be mentioned here the choir structure of S. Maria delle Grazie in Milan, square in plan, with a drum animated by small double windows and with round openings in the surface of the vault, which shows a span of 59.1 ft. (Fig. 839). Then the externally circular and internally octagonal dome by Battagli (1490) of S. Maria della Croce near Crema (Fig. 837); further the choir dome of S. Maria near Saronno over a square interior on pendentives, first with a 12-sided drum animated by niches, above which are found round-arched lunettes with small round windows, above these extending the hemispherical, plain and pointed dome (Fig. 836). Likewise the Incoronata of Lodi must be named (Fig. 838), a building constructed octagonal internally and externally, covered by a cloister vault and crowned by a lantern, provided with a t triple-arched portico between two bell towers, one of which is carried to a third of its intended height. Further are to be named:-- S. Maria at Busto Arsizio, S. Maria Coronata at Pavia, and particularly the beautiful sacristy building of S. Satiro in Milan with octagonal plan, four semicircular niches, upper arcade, cloister vault with round windows in the surface of the vault and a high lantern at the vertex -- an ornamental Masterpiece of Bramante -- with terra cotta busts and reliefs by Caradosso (Fig. 840);[315] ornamental treatment of the side of an octagon). The interior of this little structure appears to have shared the fate of S. Andrea in Mantua; it is now co-

coated light yellow, bronze-green and gray, but was originally indeed in the red tone of the terra cotta, perhaps with the use of blue color and gilding.

Note 315. From Gossino.

These domed structures also do not show the vaults externally; these are concealed behind the extended walls, which are mostly surrounded by galleries in the mediaeval sense, and a are effectively animated. (Figs. 836-839).

Another combination is executed in the dome of S. Antonio in Locarno; above a square plan is obtained an octagonal form by pendentives, over which rises a cloister vault without drum but with openings for light in the compartments of the dome. (Fig. 841). And again another is offered by the plan of S. Vitale in Capolago (Lake Lugano), an octagonal plan with small chapels in the angles, a tall drum admitting light and closed by a cloister vault. The interior is magnificently decorated by stucco and painting, and is in good condition -- a charming view. (Plan, Fig. 843).

Plain and unimportant external surfaces are shown by the h high enclosing walls of the charming creation of Sanmicheli, the Pellegrini Chapel in S. Bernardino at Verona, where also again the dome disappears beneath the protecting conical roof, but where the lantern is made so much the more important.(Fig. 842).

A genuine calotte dome with lantern and a cylindrical drum admitting light is exhibited by the Madonna della Consolazione at Todi. The plan shows a square middle area with a semicircular choir ending and three polygonal apses, thus the most s strongly expressed central design. But not only for the dome is the form of vault exposed on the exterior; likewise for the four apses the quarter-spherical vaults are shown externally; they adjoin the square substructure of the main dome, that experiences strong reinforcement by the occurrence of t the apsidal walls at its angles. A balustrade extending around forms at top the technical termination of this part of the b building, over which rises the dome. The details of this lower part of the building and of the interior up to the drum i indicate the early Renaissance; on the contrary, those of the dome are made rather Barocco. Yet the general effect is as if at one gush, if one does not investigate the details of the

ones of the earth could also give a bungler the preference o over a good man, and abandon him for personal reasons; the a authorities of S. Peter were great enough to be free from such possibilities.

Brunellesco and Michelangelo did not have their work spoiled by later colleagues, that of one on his Palace Pitti, of the other on his dome of S. Peter. They were still free from many modern endeavors "to create something new in the spirit of t the first masters," and to bring forth things, which the original masters had never oapproved, and for which they would have blamed and have laughed at the intelligence of posterity.

How the entrance facade with the free colonnade would appear is to be seen on the copper engraving of the jubilee year of 1600; what this became is shown by Fig. 851 after the illustration in Fontana; [323] what Bernini and Maderna attempted on it with clock towers and the like, can be seen and read in t the works mentioned below. [324]

Note 324. Gurlitt, C. Geschichte des Barok, Rococo and of Classicism. p. 337, 351-358. Stuttgart. 1887.

Many things on the exterior may not be happy in the interior, but the dome donminating all permits this to be forgotten; it is indeed Michelangelo's greatest work, by which he "satisfied the longing of the entire Renaissance".

Comparison with other buildings of great dimensions best allows us to recognize the scale of the magnitude of S. Peter's. A bay of the five-aisled Minster of Ulm with its system of f flying buttresses can be placed within the dome of S. Peter, which then does not reach the transverse arches of the crossing (Fig. 852); twice the height of this minster to the ridge reaches only to the foot of the lantern. The bronze canopy b below the dome is about 98.4 ft. high to the top of the cross, and equals in height Palace Farnese in Rome, measured to the roof eaves. (Fig. 853).

If we further make a section through the five-aisled Cathedral of Bourges and place it on one made through S. Peter's dome (Fig. 854), it does not entirely cover the latter. What an outlay of supports, flying buttresses and buttresses are necessary for this mediaeval masterpiece to span the same width, that is solved in S. Peter by a single vault, entirely aside from its height. What conditions, what squandering of

materials on the one hand, what simplicity and clarity in the
construction on the other!

Yet a glance at the internal decoration in contrast to what
was undertaken in Florence. In Rome a cheerful and dignified
magnificence; white marble, stucco and gold in the aisles, p
polychromy being reserved for the dome, but there are mosaics
of the most splendid effect with white and uncolored daylight,
and what is the chief thing, the architecturally correct des-
ign for the subdivision of the surface of the vault (Fig. 855)
325 proudly soars the dome thereby; it receives life and move-
ment, the heaviness is removed. And in Florence? On a badly
lighted ground a confusion of figures in its entire desolation,
without enclosure and without composition, withal lacking in
scale!

608. Domes with single and double shells,.

On the massive domes with single and double shells, constr-
ucted of stone, where ceiling and roof were one, it was estab-
lished, that they should also externally show the kind and f
form of the vault; a consequent solution resulted in the con-
struction of the internal dome with ashlars or bricks whose
form, also partly for statical reasons, was concealed behind
vertical masonry.

609. Masonry Dome behind vertical masonry with a protect-
ing wooden Roof.

This was itself covered again by a conical wooden roof cov-
ered by tiles, so that a light temporary structure must conc-
eal and protect a monumental one.

610. Doubled Masonry internal Dome with protecting wood-
en Roof and crowning wooden Lantern.

Of a third kind are doubled masonry domes built over each
other with great openings at the crown, above which rises a
protecting wooden roof covered with metal, and crossed by a
lantern. These were preferred in the last phase of the Renai-
ssance , in the Barocco period, not only in Italy, but also
in France, Germany and England.

For the first kind may be given as an example the little
central Church in Maser after the design of Palladio, which
with a circular internal form exhibits walls animated by nich-
es and half columns, above which extends an open gallery. Ex-
ternally a flight of steps leads through a Corinthian portico

to the interior, two small stairways towers rise like the so-called "ears"of Bernini behind the pediment of the front columnar projection. The great Bernini is therefore the imitator of the much abused motive. The form of the dome with its stepped construction recalls that of the pantheon at Rome (Figs. 856, 857).

611. Superga near Turin.

As an echo of this advanced phase of the last epoch is to be included the great Burial Church of the kings of Sardinia, the Superga near Turin, vowed by Victor Amadeo II, built in 1717-1731 by Juvara and dedicated in 1749, with its interesting plan and the hollow construction of the dome. Notable is the solution of the transition from the lower octagon to the round form without the aid of pendentives, by inserted columns with circular architrave resting on them, and a likewise circular cylinder rising to the dome. (Figs. 858, 859, 860; view, plan and section).

The illustrations give everything neccessary for an understanding of the external architecture, the plan and the section of the domed structure. A Corinthian tetrastyle portico on a subdivided terrace structure is placed before it, which effectively prepares for the interior, and beneath its protecting roof one enjoys a broad view over the valley of the Po, the city of Turin and the field of battle, where in the year 1706 Prince Eugene with Victor Amdeus obtained the victory against the Spanish-French army, for which the king vowed the building of the church.

The central structure with the dome placed on a high drum, flanked by two slender towers, is here splendidly expressed. Pilasters, piers, columns and entablature are of white limestone, but the wall surfaces are plastered, the external shell of the dome being covered with lead. In the interior polished columns of gray veined marble are placed erect on pedestals of reddish-yellow marble, the walls and ceilings being plastered and plainly painted. It is said of the building, that it is distinguished "by the wisdom and nobility of the design, and by the harmony that prevails in all its parts. The span of the dome amounts to somewhat more than 65.6 ft., the height of the structure to the apex of the cross is 281.1 ft.; its execution is good and substantial, the dome being in two she-

shells as at S. Peter and vaulted in bricks. Eight pairs of projections connect the two shells of the vault (Fig. 860), which join at an upper ring of masonry, from which rises the lantern. In the interior the transition from the octagonal lower story to the circular drum is effected by columns set in the reentrant angles (Fig. 860). The coupled projections are also expressed on the external surface of the protecting dome by the pairs of columns on the drum.

From the antique tradition, according to which the ceiling and roof of a vaulted structure form a united entirety (Pantheon), from the custom of the early Renaissance (Cathedral of Florence) to construct the protecting dome likewise of stone, Juvara also did not depart in his domical construction, while men were unfaithful to this principle in Venice, and constructed the external projecting dome of a lighter and more perishable material, of wood with a covering of metal. men had in this way more freedom in the treatment of the two parts, if they made the dome enclosing the interior independent of the external protecting one. 326

Note 326. See Die Superga bei Turin und Meister Filippo Juvara aus Messina. Studies in Art and History dedicated to Friedrich Schneider on his 70 th birthday by his friends and admirers. Freiburg. 1906. Essay by Josef Durm).

To the protecting dome can be given any form and height, w without taking into consideration the internal dome.

612. Stone Domes with wooden protecting Domes.

Old Venice here precedes with the good example of its Church of S. Marco. Men would not and could not go higher with the monumental stone covrering of the interior than was done, and still could give the exterior an imposing form, that could o only be attained by the wooden roof structures. The protecting domes of S. Marco indeed arose under the influence of the East, where the separation of the domes and their construction in stone and wood was already everywhere in use, a mode of construction, to which then also firmly adhered the architects on the shores of the Adriatic.

613. Wooden Domes of S. Marco.

Thus after the model of S. Marco (Fig. 861), for example, we see on the Church of S. Zaccaria the protecting wooden dome constructed in a different form and rising above the main

dome. At S. Maria dei' Miracoli above the masonry dome is a wooden protecting dome built of logs; thus on buildings belonging to the 15 th century. S. Giorgio dei Greci has the wooden protecting dome directly over the masonry dome, etc.

614. Dome of S. Maria della Salute in Venice.

S. Maria della Salute by Baldassare Longhena (1630) has an internal dome of masonry and another wooden dome covered with lead. At S. Simeon Minore (1718) both internal and protecting domes are built of wood, and only the conservative Palladio at his Church Redentore constructed the walls and domes of b bricks. Also at the previously mentioned little central Church in Maser (Figs. 856, 857); plan, view and section), he appears to have remained faithful to monumentality on account of the antique and the early Renaissance, and built in accordance w with their preserved principles. (He had there indeed a presentiment of the so-called"ears"of Bernini!). The Church Val de Grace,and the Dome of the Invalides in Paris (Fig. 862) as well as S. Paul's Church in London, have wooden protecting d domes, with all other monumentality of the building, with stone and even doubled internal masonry domes. In Vol. 2 of the great work "Le Fabbriche piu cospicue di Venezia", measured, drawn and engraved by the members of the Venetian Royal Academy of Fine Arts (Venice, 1820)," is a drawing of S. Maria della Salute, tolerably fully represented, which gives everything essential. In spite of its grotesque volutes and its other peculiarities, it already attained world fame by its master Longhena (born 1602), to be and to remain of high interest for the history of architecture.

A learned Frenchman, de Raymond, in an Essay printed in 1819, made a comparison between the construction of its dome and the later built Dome of the Invalids at Paris, which results in favor of the Venetian building in statical respects. The material in the work mentioned is not in all places so entirely complete and clear, that without further local investigations position could be taken on this question, that moreover requires mathematical researches, and would lead too far here. What is there technically of interest and value is given by Fig. 863; the plan,the geometrical and statical section, from which it results, that the proportion of the interior-- diameter to height -- exactly amounts to 1 : 2, but also further still the

arrangement of the buttresses as consoles, and those of the dome are visible together with its substructure.

The internal dome is of brick, the protecting dome being constructed of wood and covered with sheets of lead. (See Fabbriche di Venezia). The octagonal form in plan is carried out in the interior as well as on the exterior to the attic over the main cornice of the drum. The attic wall and the form of the dome in plan are circular, on the contrary (Fig. 864, photograph after Filippi), without a particularly marked subtile architectural transition. Behind the octagonal balustrade directly rises the circular structure.

The statical section shows us the strength and safety of t the arrangement. Its existence for 381 years gives a satisfactory and sound proof of the calculation and assumptions. If in the building any judge sees "the continuation of Palladio's principles of church architecture," this is his own affair, but if he declares that the dome is externally round and internally octagonal and is only constructed of wood (see Josef, Architekturgeschichte Italiens, p. 378), this is to be lamented, especially when it is then said, "that to the technically skilled connoisseur the humor is thereby spoiled." The brief technical remarks on Fig. 863 may here be repeated again in the text:-- "For the foundations were employed 1,156,657 tree trunks of 9.8 to 13.1 ft. long, which were bound together by iron bands and chains. This work was executed in the space of two years and two months."(1656).

615. Serlio on Domed Churches.

Serlio, the academic, gave us not only his views on house architecture illustrated by examples, but he also made known his preferences for churches, that were already disputed in the description of S. Peter. Also in these are some noteworthy, that are characterized by a skilful use of the motive. His facades are of antique structure, with or without the addition of towers and domes. In his "Book fifth of Temples" he starts from the central building, first gives the merely round structure, subdividing this internally and externally by niches between double pilasters, with adoption of a lighting of the interior by zenith light. To the purely circular building he t then adds four apses and crowns its vertex by a lantern. The round plan is followed under the same assumptions for the fa-

facade by the oval plan with niches; after this are arranged pentagonal, octagonal and hexagonal plans, whose structures are spanned by cloister vaults and crowned by lanterns. Then are given plans with square exteriors and octagonal interiors, with square chapels at the four angles, also such with Greek or Latin cross forms and domes over crossings; likewise three-aisled with towers and low domes without drums throughout, f further single-aisled plans with two semicircular apses at t the ends, vaulted porticos, with rectangular projections at the sides. A representation of the plan and superstructure of a pentagonal central church is given by Serlio on p. 206, and according to him is given in Fig. 777 the facade of a church without tower, and in Fig. 740 one with two towers.

For the vertex openings of round and polygonal churches, he requires for lighting the interior a width of one-half its drum. In covering the dome, this should be arranged according to the native materials, but under all circumstances a c covering with lead sheets deserves preference.

Through the circle of academies and theorists with their good advice and recipes, also in the domain of church architecture, there broke the late Barocco masters and indeed the most extreme leaders, Borromini (1599-1667), Bernini (1598-1680) and Pietro da Cortona (1596-1669). On them depend the very gifted Carlo Rainaldi and Guarino Guarini (1624-1683); the last named even sought to excel his model, Borromini.

Columnar churches became more rare, the Greek cross favored for the plan, the interiors wide and high, skylights and high sidelights were sought, the decoration was without color or was overloaded with painting and gilding. Circular and elliptical plans were preferred, the curvature of facades was cultivated, the side aisles were mostly omitted, the chapels were changed into niches, the side facades as simple as possible, at most being animated by a pilaster order. (Also see Redtenbacher, R. Architektur der Italienische Renaissance. Sections 116-121. Frankfort. 1886).

According to C. Gurlitt, "the contest excited the artists, and the results the friends of art."-- Curves and rickety details at any cost; instead of regularity often only nonsense! The break with the antique and the principles of the old masters (Alberti, Palladio, Vignola) was completed. But the skel-

skeleton yet remained standing, though the execution became different. The facade of S. Agnes in Rome would be held by no man as an exotic and entirely new organism, a structure composed with new forms of details. It remained a work of Borromini in the domain of central church architecture, which has made the master immortal. How grand in idea and how beautiful for the structure is also developed its plan! On the other h haud his church architecture of S. Carlo alle Quattro Fontane in Rome suffers from excesses, where almost every straight l line is abandoned. How proudly stand the colonnades of Bernini before the facade of the Cathedral of S. Peter! Guarini's circle of activity is Turin and his patrons were the princes of the House of Savoy, also in the church domain. The central building also appeared to him as the highest, as the most worthy of his aims, only the means of expression being different from those of his predecessors, but he knew not how to free himself from the basal elements of the Renaissance. His details are not spiritless, and not new, only thoroughly convulsed. (Figs. 209, 870). If he produced no school on his part, he has in the grave at least the satisfaction, that after two hundred years and more, at the Turin's World's Exposition (1 (1902) so many intelligent young connoisseurs found his style new to them, and were incited to imitate him. And now on many buildings on this side of the Alps are suspended trophies of his works, that Guarini revived would recognize without difficulty.

616. Domed Buildings of Guarini.

Singularly arranged are his church buildings, S. Gaetano, designed for Vicenza (Fig. 869), and especially the works at Turin, with which we have to reckon:-- S. Sudario, the Tomb Chapel of the House of Savoy, and the Church of S. Lorenzo. The plan of this (Fig. 866) may show what the master desired, and the reproduction of the photographic view of the dome from below, (Fig. 868, after Fot. d'Arti grafiche in Italia Artistica, Turin, p. 61, 1911), will tell how great his ability was. The geometrical section (Fig. 867) does not allow the effect to be entirely recognized. One might decide on Moorish influence or [illegible], if one without prejudice places beside it the section of the chapel before the mihrab of the Mosque at Cordova (Fig. 865). Was then Arab art in interiors a prec-

presentiment of that of Guarini? Yet he was well acquainted with the Iberian peninsula, which is recalled by his church design for Lisbon (Fig. 870). This supporter of the high Barocco was at least set before great problems, while the later men of today must exercize their wits on peasants' houses and on the so-called villa colony buildings, or at most on warehouses with goosepen facades. Moreover Guarini could also design in classical style, and yet still remain somewhat original, as shown by the design for a dome on a drum surrounded by columns drawn by him (Fig. 871).

One cannot be entirely silent concerning the last men of t the innovation at that time, especially today, when so many similar things are done. Also things contemporary then now coincide with the present. Vanity and nervousness, false conceptions of honor and hunger led to hypochondria and suicide, only the later school becoming again free of this. By Juvara and Vanvitelli comes the quiet of a cemetery over minds and over architecture. The spasmodic is succeeded by a last flickering of the late Barocco.

That was again the fate of the beautiful on the earth! And the time of testing begins.

When it was said, that the protecting dome of S. Marco and others in Venice resulted from the connection of the East and the West, and reference was made to the dome of the Mosque at Ispahan (1600 ?) constructed of wood and bricks, the zone of this procedure might be still farther extended, but which may be omitted here. (See Franz Pacha. Die Baukunst des Islam. P Part II. 2 nd half of Vol. 3 of this Handbook).The mode of execution and the choice of construction appears more important.

617. Construction of the Wooden Dome.

This appears complicated and wasteful of wood in its first beginnings in Italian church buildings. (I except the mediaeval log roofs over the Halls in Vicenza and Padua), like the French, which still suffered this reproach in the year 1706 (Fig. 862), only later being freed from this. Thus for example the protecting dome of S. Maria de'Miracoli (Venice, 1493), exhibits a log roof connected by a series of horizontal ties, with a small expenditure of structural timber (Fig. 861); and at the dome of S. Agostino in Piacenza are arranged stepped stone ribs on the exterior of the masonry dome on which a

series of horizontal ties are laid, which bear the roof timbers(Fig. 362). But this occurred 100 years earlier, when the French still made use of a heavy load of intersecting struts, angle bands, supported purlins and the like in their protecting domes! (Fig. 362). They did not deduce a useful employment in this domain.

618. Stone lantern on wooden Supports with wooden Roof of Dome.

The problem for the protecting dome, at least to make the lantern of monumental form, and to limit the construction of the surfaces of the dome roof to woodwork alone, could also be proposed. It was indeed an idea lying near this, that of at most securing as much as possible the parts of the dome exposed to wind and weather, which could only occur by the use of resistant materials, of stone at that time. The lantern must be afforded position and support on a monumental substructure, i.e., the lantern be supported by the vault. The model was given in the Baptistery of Pisa. (Fig. 373).

619. Dome of the Pantheon in Paris.

Jacques Germain Soufflot, the mathematician and constructor, made use of this in 1757 at the domed Church of S. Genevieve (Pantheon) in Paris, which has a span of 72.2 ft.

620. Dome of Cathedral of S. Paul in London.

After and before him, the greatest English architect, Sir Christopher Wren (likewise well known as a mathematician and constructor) had shown the way at the dome of S. Paul's Cathedral in London (1675-1710), for a span of 101.7 ft. for the dome (Fig. 374).

After the procedure of Michelangelo at S. Peter in Rome, Wren employed the iron ring for his dome in the form of a sugar loaf. In 1680 J. H. Mansart erected the Dome of the Invalids in Paris, and there opened the lower internal dome by a wide opening at the crown with a view toward the upper stone dome, closed at the vertex. Likewise the priority of invention (1675 against 1680) appears on the English side, where Wren opened the upper dome toward the lantern. It is singular, that he did not proceed a step further and also make the external protecting dome monumental, instead of the executed wooden construction. Had he perhaps the idea, that the thereby occasioned greater weight of the dome roof would too strongly

load his supports? Soufflot ventured it, though first 72 years later.

621. Modern Dome over crossing in Novara by Antonelli.

In Italy the newer technios made an attempt in the spirit of Wren with the Church of S. Gaudenzio at Novara, built in 1570 by Pellegrino Tibbaldi, which the Professor of Architecture Antonio Alessandro completed in the crossing dome of the said church in a peculiar way in 1883. We give from the journal "Ingegnari Civile e le Arti Industriali" (3 rd year, Pls. 12, 13) a reduced section through the tower-like structure, that is carried to a height of 397 ft. to the apex (Fig. 376).

It was likewise Antonelli, that executed the colossal iron construction of the Synagogue in Turin in 1881, transformed into "National Archives."

The modern period with its new means can venture in this s sense greater things, but whether all with have the same durability as with the employment of the old, is another question.

As the last illustration in our series, like the first, is given an ideal design by an unknown master for the central s structure (Fig. 377), which dates from the last phase of this epoch. It exhibits a different appearance, but not a bad one.

Section XXV. Church Equipment and Furniture.

The internal equipment of the churches enjoyed in a particular measure the favor of the new style, "which is the more easily explained, since the ornamental was just the weakest side of the formerly prevailing Italian Gothic, and that most infected by caprice."

We enter the interior; in the vicinity of the entrance doors to the House of God is placed a stoup with consecrated water, with which those entering sprinkle themselves in token of purification (Fig. 878).

622. Basins of Stone and Metal for Consecrated Water.

Basins for holy water were made of stone and metal; they m most simply project from the wall like consoles, or as smaller basins borne by supports like candelabras. They are isolated creations of art industry, in which the formative art appears with the finest means.

Of metal in the simplest form is the basin constructed in the Church Fontegiusta at Siena, which is held by an arm projecting from the wall (Fig. 879); wrought from marble is the beautiful basin in S. Maria Novella in Florence, half let into the wall, the hole in the wall being covered by a fluted shell; in its simple beauty a classic model of this kind. (Fig. 878).

Of the detached marble basins, as the richest are to be designated those made by Federighi (1462, 1463) in the Cathedral at Siena, where the ancient tripod form of support is reanimated, and is furnished with the most splendid sculptures. The little fishes carved in low relief within the basin must indeed be attributed to the excessive love of the artist for ornamentation. The pedestals were formerly held to be antique, the greatest compliment, that could then be given to a Renaissance artist.(Figs. 881,882).

Similar to these but somewhat simpler are the holy water basins in the Cathedral at Orvieto; very noble in design is that in the right transept of the Cathedral in Pisa by Rossino. (1518). In the form of a little ship in a rich candelabra support is that in S. Trinita at Florence (Fig. 880). Peculiar with a canopy above rich mural decoration is constructed the basin in the Cathedral at Palermo (Fig. 883). In the Santo at Padua are two basins adorned by the statue of S. John Baptist

and the figure of the Saviour. On a basin by Alessi in the Certosa stands an obelisk in the basin instead of the figure. Everywhere prevails the greatest diversity in the external a appearance of the same object of use. As art works would still be worthy of mention the holy water basins in the Certosa near Florence, in the Cathedral at Lucca, in the sacristy of t the Cathedral at Empoli, and that of S. Peter at Rome, besides many others in various churches in Italy, that merit the same praise.

623. Sacristy Fountains.

Consecrated fountains (lavatories) for washing the hands of the priests, especially before the mass, as well as intended for cleansing the sacred vessels, often in form of a holy water stoupor baptismal font, but always with water taps and collecting basins, were placed in the vicinity of the altar, in the sacristy or its vestibule, enclosed by stone in rich architecture, sometimes being in variegated majolica.

"A work of simple design of genius" is the sacristy fountain in S. Lorenzo in Florence, attributed by Müntz to Antonio Rossellino, constructed of white marble with an enclosure and a circular back of red porphyry. It consists of a tank supported by female figures with bats' wings and fish bodies. A lion's head adorns the front surface of the basin, from which rises a candelabra on which two dragons cling together and c cast the water into the tank. The back panel is surrounded by an oaken wreath, and over this stands an eagle with outspread wings.

Besides this composition in more sculptured sense may be m mentioned a related one; the beautiful consecrated fountain of terra cotta (majolica) in the sacristy of S. Maria Novella at Florence, a work of Robbia executed in the form of a shrine with Corinthian pilasters, above which rises a semicircular tympanum with magnificent colored garlands of fruit and cupids. On the pilaster capitals formerly (1868) were to be seen still vestiges of gilding, whereby a richer harmony of color was produced in the variegated majolica. (Fig. 885).

As the simplest example is to be named a marble lavatory f from Loreto, enclosed with two angels by a wide band of roses. (Fig. 884). In the Badia near Florence, in the vestibule of the refectory, is to be mentioned the beautiful wall fountain

of Francesco di Simone (1456-1464), made of sandstone; then in the Certosa near Pavia the lavatory in the first side chapel on the left, in the form of a shrine with palisters; further the great lavaratory with long trough in the niche covered by a coffered tunnel vault and flanked by ribs, and yet numerous others.

624. Baptismal Fountains and Fonts.

The baptismal fountains (piscinas) were basins with running water, particularly in the baptisteries of the olden time, in the place of which the "baptismal font"appeared, made of dense stone or metal. These found place at the entrance in the churches of the middle ages, and were formed as cylindrical or o octagonal tanks, or as round and polygonal bowls or basins. An example of the simpler and smaller kind with a John the B Baptist on the cover is preserved in Todi (Fig. 886), and another simple one made of marble and bronze is in the Church S. Marco in Venice. (Fig. 887).

A richer composition with octagonal receiver, from which r rises a domed structure adorned by niches and figures, is the Font del Ballerino in chapel S. Giovanni in the Cathedral of Siena, executed by various masters in the time after 1480,(F (Fig. 889), and as a work entirely in bronze, we find on the left of the entrance of the great Pilgrimage church in Loreto the extremely and richly ornamented basin made by Tiburzio Vercelli and Giambattista Vitale, with four statuettes of Faith, Love, Hope and Stability, as well as crowned by a group of figures representing the baptism of John (Fig. 890).

Especial mention is merited by the baptismal font or better the little baptistery in the middle aisle of the Cathedral at Como, in the form of a Corinthian monopteral temple with 8 m marble columns, that was executed in the year 1596 by Leonar-- do da Casara. Beside the little temple stands the mediaeval baptismal font in the form of a crouching lion with a basin on his back (Fig. 888; for the documents see D. Santo Monti, text page 222. Como. 1897).

625. Pulpits in the Interior.

The pulpit (suggestus) in Italy in the 13 th century was a already attached to a pier of the north or south side of the middle aisle. It consisted of a base with closed balustrade resting on columns, and was accessible by a stone stairway.

The Renaissance gave up this form and set the pulpit coffer on a single support, or it suspended it from a pier or a wall surface of the church and proceeded in the development from the simple to the magnificent appearance of the highest rank.

626. Stone and Wooden Pulpits.

Execution in stone was given preference in the good period; one of wood or without the sounding board mostly belongs to the Barocco period.

627. Hanging Pulpits.

The old form is yet recalled by the bronze pulpits of Donatello in S. Lorenzo at Florence, that rest on columns and were only made in this form on account of the reliefs.

As an example of a simply beautiful hanging pulpit may be mentioned that of Brunellesco in the refectory of the Badia near Fiesole (Fig. 392), and as the first work the wonderful marble pulpit of Benedetto da Majano in S. Croce at Florence, (Fig. 393), executed in white marble with gilding, inlaid glass pastes, and insertions of red porphyry.

As an equally meritorious piece and as an example of a marble pulpit resting on a single support may be named that built by Mino da Fiesole and Antonio Rossellini in the Cathedral at Prato (Fig. 394). From a similar idea Antonio Gagini proceeded on the white marble pulpit in the Cathedral at Messina, but which corresponds to the time and already shows eccentric forms on the lower part, and has an octagonal instead of a circular enclosure. These stone pulpits are also without sounding boards, like almost all of this period of the Renaissance in Italy. Fabrics stretched above them (vela), that frequently extended over one or more bays of the church, must here protect from echoes. The later pulpits, for example in Genoa, all have a rear wall with spring door, which forms three sides of the polygonal pulpit enclosure and support the sounding board. We find a similar arrangement in the Church S. Spirito in Rome; only there the rear wall is directly closed by the opening of the door.

A detached pulpit of the simplest form is possessed by Ss. Nereo ed Achilleo in Rome, to which six winding steps ascend, thus being elevated but little above the floor of the church, similarly to those previously named in S. Spirito, but that bears Barocco forms. 327 With the lower position of the pulpit

were connected many advantages for the speaker and the hearers, according to the ceiling and height of the interior. The base of the simple pulpit consists of a simple base as a subdivided cylinder, on which rises the octagonal pulpit enclosure, whose balustrade exhibits panels without ornament; it is attached to an octagonal pier of the middle aisle.

Note 327. Letarouilly, Vol. 3. Pls. 258, 260.

Permeated by Gothic details is the hanging pulpit in the C Cathedral in Perugia, in elevation recalling those of S. Croce at Florence, and as a further beautiful example of a hanging pulpit may reference be made to that carved in wood, belonging to the Barocco style in S. Maria sopra Minerva at Rome; at the angles of the octagonal enclosure are there arranged caryatids, with rich figure ornamentation of the balustrade.

629. External Pulpits.

As an example of a pulpit for preaching on the exteriors of churches may be mentioned the two small ones on the beautiful portico of the Cathedral in Spoleto, and that with a sheltering roof by Donatello on the cathedral in Prato, with its precious reliefs of cupids on the balustrade.

630. Tabernacles.

The tabernacles for the holy oil as a rule are cases let i into the wall on the epistle side, and are mostly executed in the form of a small shrine. One such is preserved in the Badia near Arezzo, that is enclosed by little Corinthian pilasters and covered by a segmental tympanum, which contains a blessing infant Saviour at the middle with praying angels at right and left. The panel between the pilasters is designed as a perspectively diminishing arched portico, whose rear wall has a small doorway. A corbel on the wall is decorated by an eagle and supports the structure.[328]

Note 328. Published in Geymüller, H. von. Illustratione Storico. Pl. 3.

Executed in white marble is preserved another tabernacle in the Cathedral of Lugano, which is represented by Fig. 891.

We have a still more charming example at the end of the left side aisle of Ss. Apostoli in Florence, a small work of Andrea della Robbia, but worth seeing -- similar in composition-- on which in addition to the burned in colors still remain vestiges of glazing.

631. Cimboriums.

Similar to these are to be named the cimboriums or tabernacles, sometimes placed in niches and sometimes detached, executed in bronze and marble. Covered by a dome like a little Corinthian peripteral structure, the whole resting on an antique basis, was designed the bronze cimborium in Fontegiusta in Siena. As an original creation with energetic treatment m may pass the likewise bronze cimborium on the high altar of the cathedral in Siena (Fig. 896), with its charming ornamentation by small figures and angelic forms bearing candles.

To the most beautiful style of the best period belongs the marble ciborium in the choir of S. Domenico at Siena, a work of Benedetto da Majano. On the base adorned by festoons rises a lower part adorned by lion's paws and acanthus leaves, that bears in round medallions the portraits of the four evangelists in relief, over this being the richly decorated candelabra portion of an octagonal temple with the statue of Christ on the apex of the dome.

Besides this must not be forgotten another marble show-piece of the early time, the ciborium now placed in the Baptistery at Volterra, a work of Mino da Fiesole, which indeed is not so flowing in form, but deserves the highest esteem in its architectural strength and the purity of the details. It is a square structure with pilasters at the angles, on a cylinder decorated by flat recesses.

Beautiful, but less important is also the marble ciborium on the old main altar of Ferrucio in the Cathedral at Fiesole, an octagonal temple, standing on an antique vase as a base in a flat niche of the altar.

632. Principal Altars.

Main altars and side altars (votive and mass altars) are to be distinguished. The former finds its place in the principal choir; the others are located in the side choirs and chapels. In Early Christian times it was placed free before the apse, in the middle ages the principal altar was moved back into t the choir niche, which was also observed by the Renaissance, so far as not forbidden by special things, as for example in S. Spirito in Florence and elsewhere, where a numerous clergy had to find place behind the high altar.

Since the 6 th century the lawful form for the high altar

was the stone table like a sarcophagus, the Table. The altar table resting on columns of the Eastern Church, as well as t the likewise early developed canopied altar (ciborium), was transferred from the East in the 11 th and 12 th centuries. The Early Christian Church of S. Clements at Rome and of S. Giorgio in Velabro, for e?ample, show above the altar table the covering roof resting on columns. The kind last mentioned -- detached altars with ciboriums on columns -- indeed occur continuously, though less common in the Renaissance, where on the contrary the sculptured wall altar found the greatest extension; which was then followed by the altar with paintings within rich and tall architectural frames as a rear wall behind the altar table, and lastly by the stone altar wall.

633. Ciborium Altar.

Of the first kind is to be named as a model in marble, the ciborium altar of Michelozzo (1448), that converts a simple altar table with two detached and two engaged columns, that support an entablature like the antique, over this being a tunnel vault, with a closed rear wall, that is covered by paintings of different sizes.[329] Then designed by the same artist, extended like a chapel and resting on four columns, the ciborium in S. Annunziata in Florence, executed by Pagno di Lago Portigiani (1448-1452), with colored frieze and coffers -- except the Barocco addition, being a finely detailed work.[329]

Note 329. Illustrated in Geymüller, H. von. Michelozzo. Pls. 40, 13, 1.

An uncommonly interesting piece, both in general design as well as in details, is the ciborium altar in S. Francesco at Peschia by Lazzaro Cavalcanti; the ceiling in form of a tunnel vault is supported by piers with intermediate columns, the altar table rests on candelabra-like feet; behind the latter rises a great crucifix.[329]

In the Church Madonna del Sasso near Biblena, the ciborium is conceived as a little temple adorned by columns. Four columns support an entablature like the antique with four low pediments, above which rises a domed roof with lantern; over the altar table is arranged a closed upper wall with a Madonna figure.

Again supported by only two columns and covered by a tunnel vault is the altar enclosure in the Church Madonna del Calcin-

Calcinaio outside Cortona, a beautiful work of Giorgio Martini. Entirely free and standing beneath the crossing dome of S. Spirito in Florence is the canopied altar with its statues by Caccini (1600 ?), and as the mightiest and at the same time most animated example is to be named finally the ciborium in S. Peter at Rome, executed in bronze by Bernini.

634. Sculptured Decorations.

On the sculptured mural altars, the front side of the table is covered by reliefs; above the table rise statues and reliefs within a rich architectural enclosure, or the entire rear wall is treated as great magnificent niches with sculptures and ornaments.

Incomparably beautiful in the ornamentation and with figures of the highest worth, was executed the altar of the Fontegiusta in Siena (1517) by Marina, with almost free and the richest ornamentation. Angel children and the aged belong to the most complete and most beautiful details of this magnificent work of the decorative art of the Renaissance. (Fig. 897). An equally great work is the Piccolomini altar in the Cathedral at Siena, where an entire triumphal arch encloses the altar niche, extending to the crown of the vault. As another beautiful example may be named the sculptured wall altar with its costly enclosure in S. Rita at Palermo, where the surfaces of the pilasters consist of superposed frames with figure reliefs. (Fig. 898).

The sculptured altar with statues and reliefs within mural architecture was especially developed in Naples; there generally the entire altar is constructed with the richest luxury within a niche.

As finely detailed is to be mentioned also the altar of Alexander VI in the passage to the sacristy in S. Maria del Popolo at Rome, a work of Andrea Bregno (1473);[330]good proportions, graceful arabesques, sculptures of distinguished style; especially beautiful is the head of Christ within a semicircle over the main cornice. The shallow shell niche divided by pilasters contains the statues of S. Maria, S. Caterina, and S. Augustine. Another beautiful marble altar is to be found in the fourth side chapel on the right of the same church with Ss. Vincent, Catherine and Antony (1497).

Note 330. Published in Letarouilly, p.567; Pl. 278.

The tomb-altar of white marble is found in the right side aisle of the Cathedral at Pisa, that arouses particular interest by its ornaments, which recall Michelozzo's treatment, and is again found on the side portals of the Cathedral in L Lugano. It is asserted in Pisa, that Michelozzo (1475-1564) actually had a hand in the work; so much the more, since there the date of 1536 is cut on the left end. From this time must also date the portals mentioned on the Cathedral in Lugano, which is made especially credible by the peculiar style of the ornaments.

As an intimate work, permeated by the entire charming art of the Robbia school, appears the main altar of S. Maria delle Grazie near Arezzo with the angels' heads, cupids, medallions, the Madonna with praying angels in the tympanum, as well as the ornamentation by little figures in the arch and in the front wall of the altar niche, where the well known delicate and variegated garlands of fruits and the figure of the Madonna are not forgotten. An eternally youthful charm lies in these creations.

Great and rich altar enclosures in colored terra cotta from the end of the 15 th century are to be named in Padua (Eremitani) by Giovanni Minello, particularly rich, great and magnificent enclosures of altar figures in marble or terra cotta in Vicenza (S. Lorenzo, S. Corona), where the fifth altar on the left is "one of the most magnificent imaginative works of this kind." Likewise Verona has a series of large and rich pieces to show, and the most graceful and especially happiest in elevation are the altars of Pietro Lombardi in the transverse aisle of S. Marco at Venice, entirely executed in white marble.

685. Picture Altars.

As picture altars are to be designated those, where a mural painting filling the entire wall of the niche is placed in a monumental treatment above the simple altar table. Then also such, where a picture rises from a step, and is enclosed within an architectural enclosure consisting of pilasters and an entablature like the antique, where the latter is carved in wood and covered by color, usually blue and gold. The pilaster surfaces are then mostly colored, with golden ornaments on a blue ground, the capitals, architrave and the main cornice

being entirely gilded, the frieze between these showing golden scroll ornament on a blue ground.

Venice and Florence possess the greatest treasures in this kind of enclosures, particularly Florence in S. Maddelena de' Pazziand in the transverse aisle and rear building of S. Spirito. "Here alone can one perceive hou a Sandro or a Filippino makes no entirely complete impression in plain or gilded, slightly ornamented hollow frames, when only these magnificent enclosures already allow the echo of the overrich life of the picture. (See J. Burckhardt, Cicerone).

The most important in this respect in the harmony of the p picture and frame, Mantegna (1459) has left in his enthroned Maria, with singing angels and saints, within cheerful and m magnificent surroundings with panel paintings; the work is at present suspended on a choir wall in S. Zeno at Verona, and is fascinating in effect.

As examples of the before mentioned altars with fixed mural paintings with a simple table must be named that in the Chigi Chapel in S. Maria del Popolo and certain side altars in S. Peter at Rome; in these the wall pictures are mostly executed in mosaic.

The Barocco period loved to indulge in these architecturally massive and overrichly treated mural altars with enclosures of straight and twisted, single and coupled columns, curved and broken pediments, where instead of painted figures, s sculptured ones occur, as the case in the Gesu at Rome, on t the altar of S. Ignazio designed by Andrea Pozzo.

A combination of the table altar base and a high ciborium structure of the most distinguished character, proudly showing marble, bronze, and noble kinds of stones, with statuary ornamentation, costly reliefs on the front wall of the altar table, is shown by the main altar of the unequaled Certosa n near Pavia, which also here was desired to surpass all else in richness (Fig. 899). It is a work of the 16 th century, in which participated Brambilla, Marini, Orsolini, the two last having executed the two angels on the table, and then particularly Annibale Fontana, the famous bronze founder, who executed the candelabras and obelisks.

The twelve marble altars in the Cathedral at Pisa may be m mentioned here as further examples of mural altars of rich and

important style, since these sketch designsare attributed to Michelangelo, and their execution to Stagi da Pietra Santa.

636. Altar Crosses.

To the liturgical equipment of the altar belongs the cross from the earliest time. Made of a noble metal, it formed the architectural termination of the ciborium (Ss. Nereo ed Achilleo and others at Rome), or it hung suspended over the altar. Later it was placed on the reredos and finally on the table itself as an altar crucifix between the candlesticks,-- a location still preferred today. As in the olden time, the ornamental characterization and decoration of the ends of the arms of the cross was retained and further developed by the Renaissance.

This cross was made from the earliest time until our days of wood, wood plated with gold, solid or hollow in gold or silver, or ivory, amber, bronze and stone. A well known and beautiful example of a silver altar candlestick with cross, a Florentine work, is given in Fig. 900. Beautiful pieces are also to be found in the Argentaria of Palace Pitti in Florence, of which are particularly to be named a bronze crucifix of Giovanni da Bologna, and then the silver cross (1582) given for S. Peter in Rome.[331]

Note 331. Illustrated in Simil. Vol. 2. pl.36.

Since the 12 th century, or generally since the 13 th, the candlesticks form a portion of the decorations of the altar. Executed in marble after the design of Michelangelo, they are to be found on the little altar in the Medici Chapel (S. Lorenzo) at Florence (Fig. 902); made of bronze in a charming w way by Almondo Bresciano, on the altar of S. Maria della Salute in Venice (Fig. 901). Of this metal are also the beautiful candlesticks of the main altar of the Certosa near Pavia, made by Annibale Fontana. Already designed in Barocco are the silver candlesticks in the choir of S. Stefano (1557-1617) in Venice, and those of the chapel of S. Antony in the Santo at Padua and many others. Other rich pieces are preserved in museums, for example in Museum Civico at Bologna, Museum Nazionale (Bargello) at Florence, etc.

638. Easter Candelabra.

Besides the altar candlesticks the great candelabras and E Easter candlesticks are especially objects of artistic devel-

development; they were executed in wood, bronze, or in the noble metals, also in marble.

A very old piece of this kind from the Cosmati time, striking by the ornamentation in full movement, is the Easter candelabra in S. Cesareo in Rome. Made of bronze are the candelabra beside the main altar of S. Maria della Salute in Venice by Andrea d'Alessandro Bresciani, less important being those in S. Petronio by Agostino de Marchis (1468); then some found in Museum Bargello in Florence. Of the candelabra represented in Figs. 903, 904, the larger is by Valerio Cioli (1529-1599); the smaller is designated as the work of an unknown Tuscan of the 16 th century.

A magnificent piece of the first rank, "that summarizes the entire knowledge and ability in ornament of the Paduans of t that time," is and remains the great bronze candelabra of Andrea Riccio (1507-1516) with the marble base of Francesco da Cola (1515) in the Santo at Padua (Fig. 905). An abundance of spirited and developed ornaments, but too much of a good thing!

Made of massive gold are two candelabras in S. Peter at Rome (1513), which Simil published [332] under the title of:-- "Executed by Benvenuto Cellini after the drawings by Michelangelo and Raphael!"

Note 332. Simil. Vol. 2. pl. 38.

Of the larger wooden candelabra for churches, two are to be especially emphasized:-- the one made by Fra Giocondo for Monte Oliveto near Buonconvento (Siena), and another with the f finest taste in details, but with inferior treatment of the elevation, in the Church S. Maria in Organo at Verona (Figs. 906, 907), carved by Fra Giovanni da Verona.

639. Hanging Lights, Chandeliers and Bracket Lights.

Lighting with oil was still rare in churches in the middle ages, but found extensive employment, particularly in the so-called eternal lamps; these were formed as hanging lamps.

A great number of such suspended lamps, executed in the noble metals, from the earlier and later times, are to be found in S. Annunziata at Florence in the chapel built by Michelozzo at the left of the entrance.

As a monumental example may pass the hanging lamp of bronze in the main aisle of the cathedral at Pisa, executed after t the design of Battista Lorenzi (1587), on which Galileo must

have made his observations on the pendulum. Two rings, between which are connected 4 S. Andrew's crosses, between them being inserted supporting cupids, receive a crown of volutes with volutes also beneath; the rings are furnished with candle holders and with small disks hanging on chains, forming an open entirety (Fig. 908).

Chandeliers with hanging glass or crystals were favorite p pieces of decoration at church festivals in all Italy.

As works in stone are to be mentioned the four marble candelabras of Matteo Civitali from Lucca on the choir enclosures in the Cathedral at Pisa.

Bracket lights of bronze, shaped as supporting basins and angels holding candles are to be found on the main altar of the cathedral in Siena, where for further lighting at the sides, great bronze angle figures are standing on volutes projecting from the piers. The few clothed statuettes post in a rather theatrical position with outstretched arms, in the hand being a small basin with the pin for the candle.

640. Reliquaries.

At certain church festivals, besides the relics necessary for the consecration of the altar, yet others were exhibited, which were enclosed in artistically wrought, costly cases of the most varied kind and form, and whose exhibition on the altar was expressly approved by Leo IV (847-855). They are in the shape of ivory caskets, ivory boxes, cases of fine woods covered with silk, wrought in gold and silver, cut in precious stones or crystal, made of gilded copper and brass, and w were not to be shown "opened"; they were either preserved in the altar cases or in the sacristy cupboards, and the appear as receptacles for the body or as small cases to receive fragments. Likewise in the form of busts to receive the skull of a saint or martyr, made in the form of an arm for concealing the bone of an arm, as fingers, foot, or other large parts of the body, as figures, i.e., as statuettes of the same saint, whose relics are contained therein; in this case wrought in metal or cast hollow. [338] But they were also made as vessels for exhibition (monstrances), when the relic is found in a cylindrical vessel of glass or crystal, so that it could be seen externally; a beautiful example of this kind, a genuine Italian work from Perugia is given by Fig. 909.

641. Holy Vessels.

There belong to the altar likewise all the so-called holy vessels, which were employed in the liturgy; chalices with their accessories, patens, boxes for the Host, ciboriums and monstrances, mass flagons and pouring vessels, censers and little vessels, vessels for the holy oil, mass bells, holy water basins, etc. Works of art and art industry, to treat which in detail would go too far for a book on architecture.

642. Stalls and Wainscoting.

According to the technics, two modes of treatment of carved and cabinet work here run side by side, the smooth inlaid work (intarsia, marquetry), and the carved, from low to strong relief, even undercut relief with gilding in places, which indeed occurred later, but more commonly. Both kinds were separated, or even executed beside each other on the same piece; in representation of figures, the preference was given to intarsia. In certain cases also appeared an imitation of intarsia by painting.

Until about the middle of the 16 th century, the cabinet work remained in tolerably pure forms; but then it shared the fate of the architecture; it degenerated in external effect and finally became poor. The Rococo for a time breathed new life into the stalls, but this revival did not last long.

A complete idea of the arrangement and treatment of the choir stalls is given by Fig. 906, from the choir of S. Maria in Organo at Verona. In details the following works may be m more especially designated as the more important, and may be observed.

1. From the earliest period with details still Gothic are the stalls made by Dominic da Gajuole and Francesco Monciatto in the choir of S. Miniato near Florence, that have remained to us. To this work is connected:--

2. The wainscoting of the sacristy of S. Croce (1440-1450) by Giovanni da Micheli with his finely graduated wainscoting, and the close of the works of the 15 th century in Florence is formed by the backs of the choir stalls in S. Maria Novella by Baccio d'Agnolo.

3. In Siena is likewise preserved from the time of 1415-1429 a still Gothic-like series of stalls in the upper chapel of Palace Pubblico.

4. In Modena exists a stall of 1465 and a wainscoting as w well as:--

5. Wardrobes in the sacristy of S. Marco (1450) at Venice, begun by: Fra Sebastiano Schiavone, continued by B. Ferronte frog Bergamo, and completed by others; they show well carved enclosures and intarsias in a great style.

6. "To the finest intarsias of Italy" belong the magnificent choir stalls in the choir of the Certosa near Pavia (1486), executed by B. de' Polli after Borgogne's design.

7. The choir stalls in the lower part of the choir in the C cathedral at Pisa, made by Domenico di Mariotto and his associates (1478-1515), patched together with the original parts after the fire of 1596, show excellently carved legs and backs, with charmingly treated scrolls and beautiful acanthus leaves. (Fig. 910). Allied to these but still more finely conceived and executed are:--

8. The backs in the Church S. Maria delle Conceio at Prato, (Fig. 911), and those in the Badea at Florence (Fig. 912).

9. The famous stalls of the choir of S. Domenico at Bologna with their figure intarsias executed by Fra Damiano Zambelli da Bergamo (1490-1549) with the assistance of his brother and some helpers in 1528-1550, seek their equals throughout the world. An immeasurable richness with the most skilful execution of the picturesque. With the aid of metal inlays for weapons and with the graduation of the tones of the wood, the n highest is here attained, that the procedure of intarsia has ever created.

10. As a good work of Riccio (1560) must be named the choir stalls of the lower Church in Monte Cassino.

11. In Palermo, those of G. Gigli (1534) in S. Francesco.

12. Naples is particularly rich in works of the Barocco period, to which the costly sacristy wardrobes in the Annunziata by Giovanni da Nola (1540) form the transition.

13. A very important work, especially in decorative respects and in figure scroll work, are the stalls of the Cathedral c choir in Genoa, carved by A. de Fiornari with complete mastery. (1514-1546).

14. As excellent work and worthily tending to the Genoese style are to be mentioned the choir stalls of S. Giovanni in Parma, as the makers being named Zucchi and Testa. (1512-1538).

15. In the choir of S. Giustina at Padua are rich stalls f from the beginning of the Barocco period by Riccardo Taurino from Rouen.

16. Stalls likewise belonging to the Barocco epoch in the choir of S. Giorgio Maggiore in Venice are to be mentioned, by Alberto di Brule (1557).

17. In Perugia the famous stalls in the choir of S. Pietro merit the highest recognition, a work of Stefano de' Zambelli da Bergamo (1535), on account of their noble magnificence and perfected taste.

18. Also "the magnificently gay" stalls in the choir of S. Maria Maggiore in Bergamo are worthily connected with the charming intarsias of Francesco Capodiferro from Lovere (1522-1532), on which his brother and his son Zimino assisted (1547-1554), The front stalls decorate a light wooden arcade with carved acroterias (sea-nymphs and candelabras); they are a w work of Giovanni Belli and his sons (1540-1574). A work of t the very highest rank of Italian art industry is found in this creation.

19. But everything yields to the works of Fra Giovanni da Verona (1457-1525) in the Church of his Monastery in Verona -- S. Maria in Organo -- a work as beautiful as skilful (Figs. 906, 913). The wainscoting of the left wall of the sacristy is somewhat later and richer, already rather overloaded in t the details, but of wonderful execution. How charming and certain is the carved workl,and yet the many repetitions of certain members do not weary the observer, since all is treated with the same love by the artist.

20. In the sacristy of S. Maria delle Grazie at Milan lies before us an example of the imitation of intarsia by painting on wood.

21. Another example of the 17 th century is presented by t the choir stalls of S. Peter in Rome,[334] dated by Simil about 1626.

Note 334. Published in Simil, Vol. 2.

643. Reading Desks.

Further are to be mentioned the reading and choir desks. In the choir of the Cathedral in Pisa stands a reading desk (Fig. 914), executed by Matteo Civitali from Lucca, that consists of a candelabra of antique form and an eagle with outspread

wings, a motive previously employed by the preceding art epoch. Another desk belonging to the later time (1626), on which the reading board is supported by cupids instead of the eagle, is to be found in the canons' choir in S. Peter. 335

Note 335. Illustrated in Simil.

A more beautiful desk was executed by Fra Giovanni da Verona for the choir of his Church S. Maria da Organo in Verona.

Also in Museum Bargello in Florence is such a one with inlaid work and good carvings (1493), that still stood in the y year 1866 in the Monastery of Monte Oliveto near Florence; at least the same piece was there sketched by myself.

644. Bishops' Thrones, Confessionals and Singers' Galleries.

As an ornamental"piece of magnificence of intarsia simplified by the antique"is the bishop's throne in the Cathedral at Pisa, executed in 1536 by Giovanni Battista Cavalliera. From the middle of the 16 th century date the two thrones above t the steps of the choir there. (Fig. 915).

As examples of confessionals and as skilful and earnest work of the 17 th century may be seen such in Ss. Michael e Gaetano at Florence and in S. Michele in Bosco near Bologna by Fra Raffaello with the remarkable representation of the nude Luxury (Lussuria).

One of the most distinguished singers' galleries, exhibiting the greatest luxury in the best sense of the word, is that wrought from white marble with the gilding of certain ornaments, in the Sistine Chapel in Rome. 336

Note 336. Attributed to Baccio Pintelli (1474) by Simil. -- Burckhardt recognizes in the "similarly decorated marble encclosures"of this chapel the two workshops of Mino da Fiesole and of Giovanni Dalmata.

645. Organs.

Of organ galleries are first to be mentioned the two executed in marbel at S. Annunziata in Florence; as rich balustrades on consoles above architecture like a triumphal arch; one dates from the 16 th, the other from the 17 th century. (Fig. 916).

An organ gallery wrought in sandstone with excellent details in S. Maddalena de' Pazzi at Florence, where a closed parapet with small piers containing niches is executed (Fig.917), as well as a marble organ gallery in S. Stefano at Genoa by

B. da Rovezzano (1499) should not be left without mention.

In S. Giacomo degli Spagnuoli at Rome is an organ gallery, especially interesting by the good preservation of the painting and gilding. "As a splendid large organ balustrade," Burckhardt justly terms that of Vincenzo Vicentino in S. Maria Maggiore at Trient (1534). As beautiful woodwork on which the color of the woodwork alternates with blue and gold design, is to be mentioned the organ front in the Cathedral at Lucca (1481), and the likewise wooden organ front over the door of the sacristy of the Cathedral in Siena, made in 1511 by the two Basiles.

"The most perfect masterpiece of its kind," a work of Giovanni di Pietro, called Castelnuovo, is and remains the magnificent organ front in the Hospital Church della Scala at Siena, and that on the part of the Barocco organ front in Vallesano, and to this may be added also that designed by Vasari for the Cathedral at Arezzo [337] (Figs. 918, 919) [338]. A stone base with consoles receives the singers' gallery with its stone balustrade. The organ front is flanked by projecting Corinthian columns with ornamented shafts, that support an antique entablature, which extends beneath the ceiling vaults. T The organ pipes are grouped within rectangular frames, divided into seven narrow panels, three of which contain the small pipes and four the large ones -- a beautiful structure, something like a great sideboard. Between the great consoles of the base are inserted niches with little figures; in the middle panel stands a small altar.

Note 337. Illustrated in von Geymüller, Vasari, pl. 11.

Note 338. The late Barocco facade in S. Giovanni in Parma (organo e cantoria) in "Italia Artistica", Parma, No. 19, p. 63, will be compared with the examples mentioned.

Freer in design are the organ fronts in S. Maria del Popolo and the two in S. Maria sopra Minerva at Rome, which in the transverse aisle are arranged over the round-arched vaults of two chapels beside the choir. From the spandrels of the two arches meeting over the dividing pier rise figures, that with the keystones shaped like consoles support the organ balustrade. The organ front itself shows the motive of the triumphal arch, in the style of the tombs of the prelates in the choir of S. Maria del Popolo. The figures have a light and almost

white ivory tone, the pipes the color of tin or silver; all else is gilded.

647. Chapel and Choir Enclosures.

Rome must also have precedence in regard to enclosures of chapels and choirs with the marble enclosure in the Sistine Chapel, that is assumed to be a work of Mino da Fiesole and of Giovanni Dalmata. From the floor first rises a solid white marble enclosure with a height of 6.6 + 1.6 = 8.2 ft.,adorned by arms, cupids and garlands of fruits, on which stand small marble piers of rectangular section, that support on Corinthian capitals a marble entablature, parts together being somewhat over 6.6 ft. high, so that the enclosure rises to a height of about 11.5 ft. To the little piers correspond marble candelabras arranged for lighting by candles, and that stand on the entablature. All surfaces and members are covered by ornaments; the spaces between the piers are closed by simple metal lattices.[339]

Note 339. Illustrated in Simil.

648. Enclosures of Choirs, Chapels and Altars.

Altar enclosures of a simpler kind, but with the noblest ornamentation, likewise of white marble, were executed in S. Maria dei Miracoli at Venice in 1480-1486 under the direction of Pietro Lombardi. The panels with round disks of porphyry, the palms and the dolphins are counted with the most charming Venetian ornamental work.

Marble enclosures with grilles and with inserted columns f for enclosing chapels are to be found in excellent work in S. Petronio at Bologna. Enclosures from the 15 th and 16 th centuries in the Churches of S. Maria Maggiore, S. Giovanni in Laterano, Baptistery of S. Giovanni, S. Peter at Rome, further in Milan and Lodi, are published in the source mentioned below.[340]

Note 340. Gruner, plate 62.

As a marble balustrade in pure treatment of forms was executed the enclosure in chapel Carafa in S. Maria sopra Minerva SFig. 921) in Rome, with other beautiful ones in S. Maria del Popolo there.

At the high altar in S. Maria delle Grazie at Milan, belonging to the Barocco period, the enclosure is constructed of 4 different materials in an interesting way; the pedestals, the

continuous plinth, and the hand railings consist of red Veronese marble, the framework of the enclosure being of black, the rosettes and clasps of white marble, with the inserted p panels of bronze. Grilles entirely of bronze of the time of 1444 are found in the chapel della Cintola Prato by Bruno di Ser Lapo Maggei.

The most magnificent grilles of iron and bronze as chapel, transept and choir enclosures from the nave were executed by the Milanese artists Francesco Villa, Pietro Paolo Ripa, Ambrogio Scagna (1660) in the Certosa near Pavia; [341] other notable examples are in S. Petronio in Bologna, S. Maria Maggiore at Rome, S. Maria delle Carcere in Prato, etc. The combination of the dark iron with the clean bronze or polished brass is preferred in the related works in the time mentioned. (Second half of the 17 th century).

Note 341. See two examples in Beltromi, L. Lo Certosa di P Pavia. p. 130, 131. Milan. 1895.

649. Equipment in Art Industry, Church Furniture.

Of the highest artistic and art-industrial value are those executed objects in the minor arts for churches, characterized by a perfect execution and by the use of costly materials, like gold and silver, enamel, faience, precious and semi-precious stones, mosaic inlays with the employment of marbles of a single, or of many colors, wrought and cast iron, brass and bronze, costly woods, tortoise shell, etc., but even more by its artistic treatment. Here are to be counted the cast bronze a and partially gilded leaves of the entrance doors of the principal churches, baptisteries and sacristies, that were already mentioned with the stone enclosures of entrance doorways, and that on account of the combination in at least one example, are not as good as the door leaves of Ghiberti -- the leaves of the middle doorway of the Cathedral in Pisa -- of the time of 1598-1602 (Figs. 922, 923). The division of the leaf into richly decorated framework and rectangular panels, following the antique model, is carried out on almost all bronze doors of the church Renaissance in Italy. (See Florence, Rome, Pisa, Loreto, Naples, the gilded bronze doors of the subterranean church of the Cathedral, etc.). As on every example of the h heavy metal works may be taken the enclosing grille of the c chapel del Sacro Cingolo in the Cathedral at Prato (Fig. 924),

and as a magnificent piece the hanging chandelier of the Cathedral at Pisa (Fig. 908).

The brazen door of the chapel of S. Januarius in the side aisle of the Cathedral at Naples, an architectural work vowed during the pestilence in 1526 and constructed of gold and marble for $1,125,000 in 1608-1637, is to be designated as a beautiful and very notable work. [342] As intimate works in metal made for the purpose of church equipment on the altar, are to be mentioned the vessels for the holy communion, of which the flagon and cup for wafers are represented in Fig.925. They w were to be seen at the Sienese Exhibition mentioned (1904), and were published in the catalogue of C. Ricci of the "Exhibit of ancient Sienese Art." (Bergamo. 1904.).

An idea of the costliness of the mass vestments is afforded by Fig. 926 (from the same).

651. Sacristies as Rooms for Exhibition and Preservation.

In the sacristies of nearly all Italian churches, that are themselves architectural works, is preserved an abundance of precious materials, not alone from the Renaissance period, a and made accessible as an inexhaustible source for a "stimulating appreciation." (Monza, Milan, Loreto, Bologna, etc.).

652. Santa Casa.

Ay arrangement of a singular nature, which led to magnificent works of the highest rank, is the exhibition of the "Santa Casa" (Holy House) in larger and smaller pilgrimage churches of S. Maria, or the provision of chapels for particularly venerated saints in more or less splendid equipment and architectural treatment.

653. Chapels of Saints.

As for the magnificence of equipment, the well known one of S. Januarius in Naples is to be placed in the first rank, and then in purely artistic respects with the development of great ornamentation, that of S. Antonio in the Cathedral at Padua. As an example of the simplest kind, we mention the Oratory of S. Francis of Assizi beneath the mighty crossing dome of the Church S. Maria degli Angeli (Portiuncula).

654. Santo Casas in Loreto and in Macerato.

The most characteristic among them is the Santa Casa in Macerato, and that best known and most famous is in Loreto near Ancona. Here the House of the Virgin at Nazareth, that enjoyed

special veneration in the year 336, was brought by angels in 1291 or 1295 to a laurel grove (Lauretum) to protect it from impending destruction. The House of the Mother of God was rebuilt and was placed in the crossing area of a lofty vaulted House of God, enclosed by a rich artistic architecture. (See both plan and section in Laspeyres, pls. 48, 59, 45 and Fig. 719). In a simpler manner the idea in S. Maria di Loreto is expressed at Spoleto and elsewhere, and indeed finally in Lugano in north Italy.

This church arrangement has extended far, even beyond the slopes of the Alps. We find it on a Bramante basis as a chapel under the open sky in Freiburg in Switzerland. Then also in S. Maria Einsiedeln (Switzerland), where reappears the original idea of a dwelling in the House of God, and an imitation thereof in the former Palace garden at Rastatt in Baden. (See Dr. P. Odilio Ringholz, O.S.B., canon and archivist of the Monastery of Einsiedeln, "The House of the Mother, constructional and devotional, or the Chapel of Grace O.L.F. of Einsiedeln." Einsiedeln. 1913.

The sanctuaries of S. Maria as votive chapels or small detached structures in churches are frequently objects of rich treatment. (See S. Annunziata in Florence at the left of the entrance in the church). The chapel of S. Antonius mentioned in Padua is a magnificent work in this respect. On those in Loreto as well as in Macerato were busied artists of the highest rank, Bramante and his pupils (1510); Andrea Sansovino, Girolamo Lomberdo, Bandinelli, Tribolo, Guglielmo della Porta, Raffaello da Montelupo and others made the statues and noble marble reliefs for Loreto, while Riccio, Minello, Jacopo Sansovino and Falconetto executed the works in Padua, there undertaking their best. In Loreto the axes of the sanctuary diverged from the great architectural axis (Fig. 719), a fact b based on no deeper grounds. For the works of architecture and sculpture of the Santa Casa in Loreto, see the perspective v view in Fig. 927, that exhibits the magnificent exterior, which encloses the original birthplace of the Saviour.

655. Private Chapels.

To these public chapels are frequently added as richly equipped private chapels of rich patricians and princes, as near S. Croce is the Pazzi Chapel, the chapel of the Holy Sepulchre

of Palace Rucellai, the house chapel of Palace Medici-Riccardi with the frescos of Benozzo Gozzoli in the present Palace Riccardi, the chapel Medici (new sacristy) in S. Lorenzo with the sculptures of Michelangelo, a sanctuary of the new art, and the Chapel dei Principi, very magnificently covered with marble -- the tomb-chapel of the Grand Dukes of Tuscany from Cosimo I to Cosimo III, with its costly granite sarcophaguses and the gilded bronze statues of the princes, for which more than $4,400,000 were expended, then as a simple contrasting work the chapel of S. Antonio in S. Marco, the chapel Pandolphus, etc., all in Florence.

656. Baptismal Chapels.

Baptismal chapels in the sense of the Early Christian time and of the middle ages in Italy were scarcely attempted by t the Renaissance movement as independent and detached structures. The oldest and for a long time the only one in Rome must be that built by Sixtus III in the year 432, whose plan and arrangement became typical for allied buildings later. Leo X (1513) furnished the building with a lead roof, and his successor further adorned it according to the taste of the time. As the next oldest design must be regarded indeed the central Church of S. Maria Rotonda (also called Maggiore) in Nocera dei Pagani, the Chapel of S.Giovanni in Fonte near the Cathedral in Naples (founded in 400), on which "the transition to the circular dome from the square by means of compartments is particularly worthy of notice," according to the statement of W. Rolfs (p. 3). If S. Vitale is meant by this, the transition there is made somewhat differently, as shown in Fig. 928 as sketched by myself. The transition is also incorrectly represented in Dehio & von Bezold. (Kirchliche Baukunst des Abendlandes. Vol. 1. p. 133. Stuttgart. 1887).

The domed Church in Nocera has at the centre a circular basin enclosed by columns, which is surrounded by a balustrade 2.46 ft. high and three steps of 1.73, 1.05 and 1.12 ft. high; on the edge of which stand trunks of columns. The building a and the dimensions given were measured by me on Oct. 2, 1907. For the probable internal form of the Baptistery of S. Giovanni in Fonte (Lateran, Rome), see Dehio & von Bezold, also Letarouilly. Vol. 2. pl. 230. p. 503 of text.

Another central church from the Early Christian period, S.

Costanza in Rome, was built as a tomb-church for the daughter of Constantine the Great, then arranged as a church and cannot come into consideration here, in spite of the similarity of plan to that of S. Maria Rotondo in Nocera. Of the many w wonderful baptisteries in upper Italy, there come in question as models only those in Florence, Parma, Cremona, Chiavenna, Pistoja and that in Pisa, interesting on account of its covering vaults. But also no further development of these is to be seen in the succeeding period. We must therefore admit indeed, that after the dying out of the mediaeval styles of architecture, the erection of separate baptismal churches also ceased, or at least was strongly limited, which indeed resulted from ritual changes in the baptismal service. For example, men wished not to forget, that one or another side chapel of a church with several aisles or a series of chapels was arranged as a baptismal chapel.

657. Tomb Chapel and Tomb Church.

While this species of building ceased, the tomb chapel and tomb church after the antique model remained in use, evidence of which today is afforded by the great millionaire tomb of the Medici in Florence.

The memorial of the great dead was placed in the interior of the church and in the cloisters. The custom of ornamenting and emphasizing the burial place in a striking manner did not die out, but only changed its external form.

658. Votive Chapels.

As central structures in a limited style are to be considered innumerable detached chapel-like buildings, without towers and only characterized by domed roofs, scattered over all Italy, and to be found in almost every little city. Many strange forms of plan and elevation occur among them, but also much of interest and beauty. Buildings in Greek cross form, polygonal, hexagonal and octagonal, the octagon with shorter or longer projections, the internal and external purely square form, the only externally square with circular internal enclosing walls, are most common. Figs. 929 to 937 give in outline some executed examples of forms of plans from Orvieto, Todi, Foligno, Fratta, Camerino, Spello, Siena and Florence; others are represented by Figs. 938 to 941.

Of special value is the Chapel Emiliana on the island of S.

Michele at Murano of hexagonal plan, a structure of the 16 th century whose exterior is built of Istrian limestone with an internal dome of brick. (Fig. 942; plan and vertical section). The external angles are particularly emphasized by boldly treated Corinthian columns with two accompanying vertical bands, ending in a broken entablature, supporting a block with a sphere. Above these rises a low attic, beyond which ascends the hemispherical external protecting dome of stone, crowned by an ornament like a baluster. In the interior the reentrant angles are accented by small coupled columns, connected by semicircular arches, between which rise steep pendentives that bear a circular cornice, above which rises the internal calotte. (See section in Fig. 942). Peculiar is the conical wooden protecting roof covered with tiles before the two masonry domes, to carry to the exterior collected rain water. Foresight and small confidence in the peculiar construction, also shown by the pier at the middle and the iron bars extending radially from it. -- But beautiful is still the little building!

659. Subterranean Churches.

As completely built subterranean churches executed in the forms of a good Renaissance, are to be characterized those of the cathedral in Naples, of which W. Rolfs justly says in Naples II, that their internal architectural treatment, "freed from all late additions, shines in the entire purity of the style."

Survey of Church Equipment mentioned.

1. Holy water basins.
2. Holy fountains.
3. Baptismal fonts.
4. Pulpits.
   a. Hanging pulpits.
   b. Standing pulpits.
   c. Preaching pulpits on the exterior.
5. Tabernacles for the holy oil.
6. Tabernacles for the sacrement.
7. Main altars.
8. Canopied altars.
9. Statue altars.
10. Sculptured wall altars.

11. Side altars.
12. Table altars.
13. Altars with fixed mural paintings.
14. Altar ornaments.
    a. Crosses.
    b. Candlesticks.
    c. Easter candlesticks.
15. Eternal lamps.
16. Chandeliers and bracket lights.
17. Reliquaries.
18. Sacred vessels.
19. Stalls and wainscoting.
20. Reading and singers' desks.
21. Confessionals.
22. Organ galleries and fronts.
23. Singers' galleries.
24. Altar enclosures and communion benches.
25. Bishops' thrones.
26. Chapel and choir enclosures.
27. Chapel, transept and choir screens.
28. Holy houses.

An abundance of illustrations of these and of related objects are contained in the parts of the Collectione di Monografi illustrate, the series "Italia illustrata", under the direction of Corrado Ricci, as well as representations of embroideries, altar coverings, mass vestments, etc. [343]

Note 343. Until now more than 60 richly and well illustrated little volumes have appeared. The great monumental arts here stand in the foreground, sculpture and painting, but views of cities are not neglected. The text is comprehensive and superior. The best Italian investigators in art have contributed to the undertaking, like Malaguzzi-Valeri and many other names with great fame. The manufacture is elegant and beautiful, and excellent are also the selection and reproduction of the illustrations. To every specialist and to all cultured laymen it is to be recommended.

Section XXVI. Tombs in Churches, Tablets and Cenotaphs.

660. Tombs, Tablets and Cenotaphs.

The custom of the burial of the dead of ecclesiastical and noble rank in churches, and of designating the places by monuments, extends through the entire Christian middle ages,[344] and reaches into the latest epoch of the Renaissance. Thus it is sometimes a high priesthood as in Rome, sometimes a warlike aristocracy as in Naples and Venice, and then are heroes of science and art, or eminent statesmen (S. Croce in Florence), for whom artistically treated memorials were created.

Note 344. See Otte, Vol. 1, p. 334.

According to form, we have to do with reclining or standing monuments, the latter belonging more to the later time. The burial places for these were indicated by stone or bronze slabs, that lie flush with the pavement. The so-called tombs (tumba) are of masonry covered by a stone or metal slab, or entirely composed of metal plates, being tombs elevated above the pavement; in these the tomb may be detached or have one side set against the wall, and also after the form of an arcosolium of the catacombs, may be enclosed in form of a niche. Here are to be counted the stone or metal tombs like bathtubs set on columns or animal forms, which still belong to the end of the middle ages.

Tablets and cenotaphs were erected in memory of the dead on the walls and piers of churches and cloisters, and belong to the species of standing monuments.

What the Gothic created in this domain in Italy is mostly affected, in comparison to what the Renaissance produced. The former was satisfied by a sarcophagus on columns or supporting figures, with often scarcely visible and elevated reclining statues, or also by a shrine resting on columns with a recessed painting. On account of their too elevated position, statuettes nowhere had the proper effect; also the angels drawing aside a stone curtain was not the happiest addition.

The Renaissance dealt with this legacy; but it transformed the deceased into "beautiful, sensible and reasonable proportions." To this inheritance was added the very much older one from the antique, and these together remained not without influence upon these almost richest and most wonderful art works of the Italian Renaissance.

Architecture and sculpture equally participated in the work, wherein the most different kinds of stone came into use, from the plainest sandstone and pure white marble to the most brightly colored and costly sorts, hard granite and porphyry.

Besides these, bronze alone or in combination with costly stone still found employment, for example on the sarcophaguses of Giovanni and Piero de' Medici in S. Lorenzo at Florenece by Andrea Verrochio.[346]

Note 345. See Gozzini, V. Monumenti sepolcri della Toscana. Pl. 13. Florence. 1819.

Note 346. Reproduction from the same.

In the early period a part was played by perishable as well as by monumental polychromy, when beside the white marble dark red porphyry was employed, particularly in the form of panels, (tombs in the Badia and in S. Croce at Florence), or heraldic colors were applied to the marble, especially blue and gold with red, whereon the shields of arms shone in the colors of the family (Tombs in Araceli and S. Prassede (1474) in Rome, and the wall surfaces behind the sarcophagus are colored a reddish-brown. The palls on the state bed carved in stone frequently show flat patterns of fabrics indicated, that are gilded and rise from a blue ground. (Florence).

The prevailing motive, that is present in the tombs of the Renaissance, as a rule is a niche of not too great depth, in its lower part being placed the sarcophagus, on which the figure of the deceased rests directly or on an ornamental state bed. The semicircular top of the niche is decorated by a Madonna with angels or a protecting saint wrought in high relief. The ends of the sarcophagus, the imposts of the arch and its crown receive statuettes or cupids. The enclosure of the niche in Florence is almost entirely formed as Corinthian pilasters; in Rome being animated by small niches, in the form of columns with figures, or as mural decorations in form like triumphal arches, we find them in Venice.

As a tomb is sculptured in marble the beautiful monument of Angelo Acciajuoli in the Certosa near Florence, a work of 1550, alleged to be by Donatello and Giuliano da Sangallo (Fig. 943)[345], to which as the highest is contrasted the tomb of Sixtus IV in S. Peter at Rome, cast in bronze in 1493 by Antonio Pollajuolo. On a state bed lies the form of the Pope in great

state with the tiara on his head; four shields of arms are f found at the angles with six allegorical figures on the horizontal surface of the bed. At the sides and separated by h horizontal consoles in part ending in lions' paws, are three reliefs containing figures on each longer side, with two each at the ends, -- the whole being an earnest and grand work of charming beauty!

The antique sarcophagus was utilized by Donatello in the t tomb of Giovanni de' Medici in the Church S. Lorenzo at Florence (Fig. 944),[346] and Francesco da Sangallo recalled Etruscan models, certainly in a very refined conception (Fig. 945),[346] in his monument executed for Angelo Marzi in the Annunziata at Florence (1546), with the reclining figure of the deceased, supported on the right arm and reclining on a simply subdivided sarcophagus. The same master also employed the Roman shrine with the seated figure for his bishop's tomb. (1560). (Fig. 946).[346]

Likewise Luca della Robbia adhered to the antique sarcophagus in his simply beautiful monument for Benozzo Federighi ((1450) in S. Francesco di Paola at Florence. On the lid of t the sarcophagus reclines the statue of the deceased in state with the mitre on the head, on the background of the niche b being visible in high relief figures of the Saviour, of the Madonna and a saint; garlands of flowers in flat borders enclose the niche on four sides, that is terminated by a rather dry cornice. Here is a greater consecration, a deeper earnestness in this early creation, than in all later show pieces. (Fig. 947).[346] With a closed sarcophagus resting on consoles and the exhibition of a bust of the deceased, Mino da Fiesole was satisfied in his bishop's tomb in the Cathedral of his n native place (Fig. 948)[346]; the ornament is there of the greatest delicacy, tenderly and beautifully designed and executed.

Into the faults of the Gothic, Donatello fell in his monument for Pope John XXIII in the Baptistery at Florence. He creates a genuine Renaissance structure animated by niches with figures and pilasters, above which is the simple sarcophagus on columns with a state bed like the antique, on which rests the reclining figure of the Pope, but whilh is placed too high in proportion to the whole. The form of the Madonna in the

shell is beautiful, but the details of the shell itself are too large, and the stone curtain is not a happy addition. (F (Fig. 949).[346] In this way also suffers the tomb of the Cardinal of Portugal (1459) in S. Miniato near Florence (Fig. 950),[346] but where the lower position of the sarcophagus with the state bed is to be praised.

Earnest and good in elevation and details again remains Mino da Fiesole in the tomb for Marquis Ugo in the Badia at Florence, where the side panels of the walls of the niche and t the spandrels near the round medallion with the Madonna are executed in red prophyry, while all else is wrought in white marble (Fig. 951).[346]

Allied to this is the monument of the Florentine brothers Bonsi in the atrium of S. Gregorio in Rome, according to Burckhardt, "one of the most beautifully arranged of the entire Renaissance." The busts of the two brothers are exhibited in round niches of the substructure, on which a trough-like sarcophagus stands, above this and executed as mural reliefs being the Madonna and the Child, on the right and left thereof standing a praying angel. The severe semicircular tympanum h here yields to a shell with the Florentine arms, also recurring on other monuments; the angles are characterized by balusters (Fig. 952); the arabesques are of particular delicacy.

The highest ornamental movement and style appear on the tomb of Marzuppini in S. Croce at Florence (1450) by Desiderio da Settignano, "which is refined by Grecian and not merely Roman models." "Here has disappeared all caprices; the happiest arrangement below and above also makes enjoyable the ample richness. What perhaps was not again attained in this purity and magnificence, is particularly the scroll work on the sarcophagus."[347] (Fig. 214, and compare the ornamental work on the Biga of the Vatican).

Note. 347. Burckhardt, J. Der Cicerone etc. p. 231. Basle. 1860).

The most important and last form, that the architecturally arranged wall tomb could attain, in which the triumphal arch, as nowhere else, is treated with this light dignity, is recognized by Burckhardt in the tombs of the prelates in the choir of S. Maria del Popolo in Rome, designed and executed by the great Andrea Sansovino (1505); the arabesques belong to the

most beautiful of the entire Renaissance.[348] Besides these art works, there are also in Rome the tomb of Savelli in araceli (1498), distinguished by sculpture and ornament, then t that of Petrus Ferrix in the great cloister of S. Maria sopra Minerva, further that of Pietro Riario (1474) in the choir of S. Apostoli, and in the cloister of S. Maria della Pace is to be mentioned the tomb of Bishop Boccacio (1497), and with these still a hundred others of equal artistic value, that cannot be even named here.

Note 348. Published in Letarouilly.

In the Certosa near Pavia we are also entirely charmed by the tomb of Giovanni Galeazzo Visconti under a two story chapel, begun by Giacomo Christoforo Romano and Benedetto Briosco, (both have left their names on the monument, one on the main cornice, the other on the base of the statue of the Madonna), and completed by the assistance of Galeazzo Alessi and of Bernardino da Novati.(1492-1569). (Fig. 953)[349]

Note 349. After a photograph of Beltrami. p.108 et seq.

Strongly influenced by Roman and Grecian motives is the monument of Strozzi in S. Andrea in Mantua (1529), where the sarcophagus with the extended reclining figure of the deceased rests on a slab bordered by mouldings, that is supported by four caryatids. They recall in form and pose a well known Grecian work in marble in the Museum Nazionale in Naples, or those of the Erechtheion on the Acropolis in Athens. Standing on a decorated common plinth, they give to the work a peculiar appearance with special charm. (Fig. 954).

One is there reminded of an allied creation, the tomb of C Caraciolo in S. Giovanni at Carbonaro, which is attributed to Andrea di Ciccione. But instead of the female figures, here appear three armed figures leaning against rectangular piers, and with the supports are wrought from one block, as at the Incantada at Salonica, with these forming the supports on which rests the sarcophagus adorned by figures in niches; its front surfaces are decorated by soaring late Roman figures s supporting a wreath.

Likewise the monument of Giovanni Borromeo, transferred to Isola Bella in 1793, a splendid work of the transition style, exhibits the same motive of three piers with figures at the sides, which support the richly sculptured sarcophagus.[350]

This part of the work is attributed to Amadeo; according to documentary traditions Antonio Datti worked on this monument in 1475-1479.

Note 350. Illustrated in Meyer, Vol. 2. Pl. 10.

Omitting the figures with the rectangular free supports like Corinthian, but with an arched niche above the sarcophagus in which is placed the equestrian statue of the hero, is the tomb of Colleoni in Bergamo, designed by Amadeo.

To this group also belongs the tomb of Doge Mocenigo in Ss. Giovanni e Paolo in Venice, where in a niche free figures support the sarcophagus instead of figure piers, while with reference to the elevated location of the sarcophagus, the statue of the Doge is represented as standing on the elevated sarcophagus..

As a representative of the great Venetian monuments, which are constructed as a triumphal arch adorned by columns and w with a figure niche, must be named that of Doge A. Vendramin in Ss. Giovanni e Paolo.

Sitting, reclining and standing figures occur on the sarcophagus, even the rider on horseback,(for example on account of his weight in Bergamo being executed iu gilded wood) is n not lacking.

The tomb from the end of the first half of the 16 th century until in the Barocco period exhibits as a typical form a great sarcophagus with allegorical figures, included within a mural architecture with the portrait statue of the deceased. As a work of great genius in this kind are taken the wonderful works of michelangelo in the sacristy of S. Lorenzo, the so-called Medici tombs in Florence. (Figs. 955, 956) 346 "Architecture and sclupture are so combined, as if the master modeled from the same clay sarcopagus, statues, pilasters, c cornices, niches, doors and windows. Highest unity of space, light and forms."-- A judgment in which all will gladly agree. After the same basal idea are executed the tombs of the Popes in S. Peter of the time mentioned, 351 where that of Paul III (1549) with the wonderfully beautiful half reclining figures of wisdom and of justice by Guglielmo della Porta must be designated as the most splendid.

Note 351. Illustrated in Simil.

The tombs in the chapel of the princes, the burial place of

the Ghand Dukes of the House of the Medici in Florence (built 1604) show in six niches the magnificent granite sarcophaguses executed at a colossal scale for the princes from Cosimo I to Cosimo III (1575-1723), above them being niches with partially gilded statues -- weak in form, but in costly materials and greatness of scale surpassing all echos of Michelangelo's ideas. These were expended for these $4,400,000 from the private fortune of the family, not from taxes!

Beyond all stands the tomb of Julius II, that was to be the life work of Michelangelo, of which has only come down to us sketches and separate figures (in S. Pietro in Vincolis at Rome.[352]

Note 352. See Album Michelongiolisco dei Diseģni Originoli ripredotto in Fotolitoģrofia. Florence. 1875.

661. Bells.

"I call the living, lament the dead, destroy lightning!"

Bells are far-sounding metal works hung on high, struck or set in motion, and serve to waken, warn and call together multitudes of men. For waking they were already in use in ancient Rome in the form of hand bells, and in the Christian epoch t they served for church purposes. The oldest were indeed small and riveted together from plates, although quite early were mentioned cast bells.

The 9 th century is the time of the general extension of t the use of church bells. In the corridor of the upper story of Museum Bargello in Florence are exhibited seven examples, that all show an elongated Corolla form with the usual marginal mouldings, the oldest specimen of these bearing the date of 1153, while others have the dates of 1373 and 1440. For s some the hammer is fastened to the top by a pivoted bolt, visible externally, for others by means of screws. Their sculptured ornamentationwas very modest in the middle ages; it was mostly limited to a few mouldings and to inscriptions.

A more richly decorated bell is ornamented at top by festoons and below by a frieze of cupids; as founder is given the Florentine master Giovanni M. Cenni with the date of 1675. On the leaning tower in Pisa some bells show the arms of the Medici, and one of them bears the inscription:-- "Fusum. Hoc. Oles. Deoque. addictum. Nicolas. Castillo. Aedituo. A.D. 1606."

The arrangements for ringing the bell are of a rather deta-

detailed character. Beneath the yoke, that has iron pins resting in iron bearings, is a fixed triangular wooden frame, whose apex is placed within and is set in motion during the ringing. Very primitive is the arrangement on the five bells of the campanile in the court of the Annunziata at Florence; on the yoke is nailed a plank extending downward, in which is s set a bar at right angles, at the end of which hangs the rope for ringing. It should not be forgotten, that in many churches of Italy, not all the bells are rung, but frequently are merely struck.

A magnificent example in form and ornamentation is the great bell of S. Peter in Rome (Fig. 957), which was recast in 1785. 353.

Note 353. From Simil; Pl. 39. Year 1785 in Simil. -- The lower diameter of the bell is given as 7.48 ft.

981 Section XXVII. Buildings for Monasteries and Brotherhoods.

662. Monasteries.

On this side of the Alps during the middle ages the monasteries had already attained in plan and extent to a high degree of perfection in contrast to Italy, where from the 12 th to the 14 th century, scarcely anything of importance remains in monastic architecture. On the other hand, in the 15 th century the Renaissance again took up this species of buildings, erected them mostly larger and architecturally more magnificently, than was permitted to the North. What favored monasteries and gave them great importance was the "excellent and rational arrangement; the beauty and the many forms of hall architecture," which the Renaissance so well understood how to employ. In the many-sided architectural treatment and development of the cloisters surrounding porticos lies the centre of gravity of this kind of buildings.

But then it is the monastery church itself, whose sacristy and other subordinate rooms, the refectory, chapter hall, dormitory, as well as the dwelling of the prior and the library, that with the necessary agricultural structures (barns and s stables), hospitals, guest houses, etc., made the plan very extensive and exceedingly notable.

The magnitude of the buildings and their equipment depended on the rules and the wealth of the order, which they had to serve. The monasteries of the mendicant orders were arranged differently from those of the rich and distinguished Benedictines, and those which imposed on their brothers eternal silence, must create living conditions different from those maintaining direct relations with the external world. Thus for example in the Monastery S. Marco at Florence were arranged small sleeping cells, scarcely as large as a modern prison cell, one after another opening on a common corridor, which served the brothers for habitation. In the great Cistercian monasteries (Certosa near Pavia and near Florence), small houses consisting of two rooms, a loggia, stairs to the attic with a l little garden, formed a separate possession for meditative o occupancy, one placed beside another and grouped together around a great sunny court. (See the plan of the Certosa near Pavia (Fig. 959) 354 and Fig. 958, plan of the Certosa near

Florence, not entirely trustworthy in details). Excellently preserved in all parts, both monastery plans still afford today a reliable representation of what the builders desired c centuries since. Likewise the third Certosa in upper Italy, that near Pisa is splendidly preserved with the Barocco designs of the garden and fountains, and their charming Roman double court with draw wells of the good period, is uninjured and is twice and even thrice worthy of a visit on account of its magnificent landscape surroundings. At present is established there a Royal training school for girls, but the buildings remain accessible with a guide without further formalities. The small Renaissance court with the transverse one story portico forms an architectural jewel.

354. In Beltromi, pl. 8.

(From Famin and Grandjean).

With the greatest plans are to be counted S. Severino in N Naples, S. Ambrogio in Milan, Monte Cassino and S. Martin near Naples with its magnificent decorations.

If the differences in the dormitories were already recognized as important, this is increased in a greater degree, if one compares the little church of a usually picturesquely located, peaceful and plain small Capuchin monastery on a wooded mountain height with the magnificent church of the Cistercians in the broad plain. Poverty and little art on the one hand, wealth and the most refined art requirements on the other; t there whitewashed walls with wooden beam ceilings, brick floors, a simple table altar with wooden candlesticks; here wall surfaces gleaming with marble, gold and precious stones, richly painted and lofty vaults, mosaic and marble floors, costly sculptured wall altars with splendid paintings, tabernacles of bronze, candlesticks and crucifixes of massive gold and s silver, reliquaries beset with precious stones, Easter candlesticks of the most perfected art forms, richly wainscoted sacristies, choir table with the finest carving and intarsias, all breathing wealth and high art. (See the certosa near Pavia, indeed the richest and most beautiful monastery in the world."

Thus here also are poor devils and rich masters, who serve their Lord God in the same faith and the same inspiration!

How charming is often the little court covered by vine lea-

leaves, surrounded by porticos, with bright flowers, a draw well or a springing jet of water at the middle, together with the blue sky -- and God's peace! Quite otherwise are the magnificently adorned broad porticos with paintings or marble m monuments of the noblest kind on the walls, the columns of t the porticos of costly stone, the architecture supported by them, executed in ornamental terra cotta (Pavia), or decorated by varied majolicas (Certosa near Florence) -- often the ripest works of authentic masters.

In Rome one is so greatly charmed by the simple "court with a hundred columns." of Michelangelo in S. Maria degli Angeli with the draw well and the cypresses several centuries old, as well as that of Bramante in S. maria della Pace with its richer architectural motives, that in their original conception present one of the most dignified works of the great architect of the high Renaissance. Interesting is the effect of the court of S. Maria della Quercia near Bagnaja in the forms of the transition style, then the different cloisters of Brunellesco at Florence, the most beautiful of which is S. Croce; or those with widely springing arches and slender columns standing on masonry wallsat S. Lorenzo and in the Badia near F fiesole. Likewise the small courts in the Certosa near Florence, especially that narrow in plan with the little Ionic c columns set diagonally in the upper story, must not remain w without mention.

On Sicilian soil, the Benedictine Monastery in Catania presents a more academic solution of the plan. The church is placed like a cathedral in the middle of the plan, in order to group around it in symmetrical arrangement the courts of the buildings of the monastic brothers. (Fig. 960). This monastery after its completion was one of the greatest of its kind. commenced, then abandoned, again begun and changed, then remaining unfinished, it exhibits all variations in the good and bad taste of the artists, who were successively engaged here for almost three centuries. The corner stone was laid on Nov. 28, 1558, by the Viceroy Giovanni de la Cerda, the first plans were made by P. Valeriano de Franchis, a learned Benedictine of Catania. What was completed in 1578 was occupied; in 1605 were set the 14 columns of Carrara marble; in 1669 an eruption of Etna caused great injuries; a new earthquake destroyed the

beautiful cloister and the church -- the monastery was abandoned. Yet in 1730 men again commenced its erection, and the following architects destroyed the unity of de Franchis' design, that is reproduced in Fig. 960. Hittorf is enthusiastic, who says in his work mentioned below:-- [356] "One cannot avoid admiring the power of the institutions which create so many marvels," and concerning the stairway wall drawn by him (Fig. 170), he states:-- "It gives a faithful representation of this magnificent stairway," which may be termed appropriate.

Note 356. Hittorf & Zanth. p. 40, 41.

663. Schools.

The buildings of the religious brotherhoods (Confraternities or brotherhoods) are for the care of the fraternity in a foreign place, for common friendly activities, or for purposes of devotion. They mostly appear as "Houses of Societies" in monumental design with frequently rich treatment of the facade. The basis of the architectural programme is composed of a great assembly or council hall, wardrobes for clothing and banners, together with coffee and writing rooms, an added chapel or a wall altar in the hall.

Likewise as two story oratories (Siena) and connected with a small or medium cloister are these fraternity buildings to be found, with the richest belonging that of the Brotherhood bello Scalzi in Florence with the gray on gray frescos painted by Andrea del Sarto.

In Venice these increase to enclosed palaces, that aside f from subordinate rooms and a grand stairway, consist of a great lower hall and an upper hall of the same size with an altar. The two finest examples in the city of the lagoons are the Brotherhoods of S. Rocco and the Brotherhood of S. Marco. Both exhibit magnificent facades with rich sculptures and costly marble facings; they are built in two stories with a triply divided facade system.

S. Marco exhibits one of the most costly marble portals, a and with its facade architecture on the right and left of the portal, its three semicircular pediments, is a decorative show piece of the first rank, that makes the Place before S. Giovanni e Paolo with the equestrian statue of Colleoni, and its steps toward the canal, one of the most interesting architectural views in the world. Behind the "gay exterior" is now c

concealed "a dreary purpose;" the building, erected in 1485 after the drawings of Martino Lombardi, now serves as a hospital. In the interior are worthy of consideration the three-aisled hall with columns and with a wooden ceiling, the beautifully carved wooden bracket caps with the rich volute consoles on the nobly shaped marble columns, and then further the rich c ceilings in the upper story. 357

Note 357. Published in Cicognara, p. 109 and pls. 156-159.

The plan of S. Rocco (Fig. 961) 358 likewise shows in the lower story a three-aisled hall with an altar wall, besides some administrative rooms, but then a beautifully designed s stairway in three flights, that leads to the upper story. As architect is named Antonio Scarpagnino. The magnificent stairway was erected in 1517, the entrance portal dell'Albergo in 1547.

Note 358. From Cicognara. pl. 195.

The facade shows a termination by a horizontal cornice. Its surface is subdivided in three panels by four projecting columns with broken entablature and belts, which are animated by double windous; those of the upper story are animated by columns supporting pediments, whereby an animated alternation of light and shade is produced on the facade. An overrich piece of magnificence of its kind. 359

Note 359. Published by the same. p. 199, pls. 190-195.

As little chapels, that have rich facades and at the same time must have served as places for assemblies, are to be repeated here the beautiful buildings of the Misericordia in A Arezzo 360 and of S. Bernardino at Perugia.

Note 360. Published in Geymüller.

664. Final Conclusions.

As a starting point for our considerations we take the powerful work -- the Cathedral dome of Florence --, which gave the victory to the new art tendency of the Renaissance, which we leave in the general view of the Tuscan capital as the last small display afterwards, (Fig. 962), and take leave of it with grateful hearts. Much lies between this work and the "s "sham and scrolled nature with the coloring of Borromini in form." Between the two lies the somewhat lean and cold style of Bramante, but also that art pariod "for the formative and technical arts, which after that of Phidias is alone to be r

regarded as entirely emancipated from barbarism." (Gottfried Semper's Stil. Vol. 1. Sect. 85. Renaissance). But the same great man feared, that for its removal and further development, since it could only be extended by truly artistic hands, that the danger lay in blunders, now required, as well as in degeneration into the most trivial commonness of the forms. It may be so, but I do not see it as so black. Also I do not believe in an "artless culture," where the sight of a mystery of nature indeed deeply affects mankind, butdoes not lead it to a frenzy, such as we term Church S. Marco in Venice, the Hermes of Praxiteles or Orlando Furioso, neither that we shall live without art, because it produces greater things, according to Auburtin's opinions. We await them. May our self-taught leaders in the art, to which dilettanteism is connected as a natural appendage, express themselves in such gifted nanner as "true and false architectural culture," and indulge in imitations of soulless reproductions of houses by the dozen in the Biedermeier style, then will their prized simplicity only lead to snobbery,and the theory of genuineness in materials to snobbery in materials. (In this sense see R. Scheffler. Neue Rundschau. Heft 8. Year 1912.

Heine's verses still remain to us:--

"Heaven gray and everyday,
Beautiful South! how I revere
Thy heaven, thy gods."

I take as my farewell to my readers at 76, and say with the pleasant fellow (Prologue, Faust I):--

"Whoever is ended, nothing is to be made right for him,
A coming man will always be grateful."

With all the heights, that I find for the South supporting culture and art, I will again recall another word of warning:--

"This land, turned to thee alone,
Produces its finest flowers;
To the earth circle belonging to thee,
O prefer thy fatherland!"

This is as true, as the South is great and beautiful!

"To emphasize a treasure in memory,
That shall be the meaning of my hymn."

Dante. Paradise. Hymn I.

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